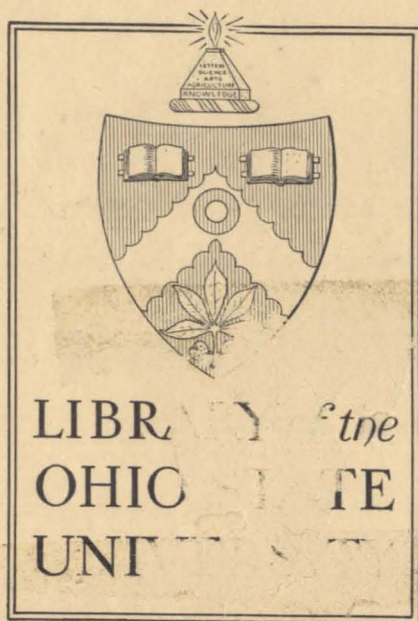


The History of  
Collegiate Education in Architecture  
in the United States

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# The History of Collegiate Education in Architecture in the United States

## A DISSERTATION

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BY  
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## CHAPTER I

### INTRODUCTION

The history of collegiate education in architecture in the United States is for the greater part a record of the heroic struggle of its leaders against the discouraging circumstances peculiar to professional schools in this field. Throughout it is characterized by successive attempts to create an effective educational program within the general plan of the American university, which would meet the requirements of the profession as these have changed from period to period.

*Statement of the problem.* It is the purpose of this study to trace the development of collegiate education in architecture from its beginning in this country, through all of the important phases to the present time, with an analysis of the conditions and influences which underlie each successive period and a summary of its significant features.

*Scope of the investigation.* The collegiate schools are now the only important factor in formal architectural education. Therefore, this study is limited to the regular professional schools and the various agencies which have directly contributed to or influenced their development. While it is closely related, the course in architectural engineering has an entirely different set of objectives; therefore it is excluded except where it has affected the regular course in architecture. Comparison of architectural education in the Canadian schools with that in this country is both interesting and valuable. The Canadian schools were included in the Survey conducted by the Association of Collegiate Schools of Architecture. Their background, however, is essentially different, and there has been little contact between them and the American schools; so for the purpose of unity and consistency any reference to this parallel movement is also omitted. No attempt is made to include features based upon quantitative surveys, except in the case of the growth of enrollment in the schools by periods. Such meager quantitative data as now exist upon curriculum subject matter, teaching loads, relation of staff members to enrollment, or any considerations based upon such findings are disregarded. In no instance has a survey been adequately controlled; and in a history of education in a field which is primarily a fine art, material of this type, even when fairly reliable, can have but very little significance.

It was the purpose of the author to follow the recognized procedures in the field of education throughout this study. Yet, since it is hoped that the work may prove of value to teachers in professional subjects who are not conversant with the formal theories of education, it seemed expedient not to limit it entirely to academic considerations. This history is one which is so dependent upon the personalities of its great leaders

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and so rich in human interest that it cannot be adequately presented by mere statements of scientific facts alone. In each of the individual schools it is a story of unusual personal sacrifice and loyalty to the ideals of the profession.

*Reasons for undertaking the study.* No comprehensive study of the historical development of professional education in architecture in the United States has hitherto been undertaken. Even in the case of the growth of the individual schools, there have been compiled but few complete historical accounts.

Collegiate education in the field of architecture is of relatively late origin; the problems confronting the schools have been difficult, and therefore, the periods which must be considered as generally formative in character have been long. It is only within recent years that architectural education may be considered mature in respect to its national organization, basic principles, and procedures. In many respects, however, the schools have now attained a position in accordance with the best educational thought of the time.

The profession is at this time in a state of perplexity regarding its outlook in the new social order, and educators are questioning the adequacy of many elements of the present training as a preparation for the practice of the future. This is a period of uncertainty and experimentation throughout most of the schools. In the readjustment there is a need for a careful analysis of the sources and background of all features of the system as they now exist.

All these conditions, in the opinion of the author, make an accurately compiled history of collegiate education in architecture a timely contribution.

*Organization of the study.* There are three distinct periods in the history of American education in architecture. These correspond to the three major divisions in the history of architecture since the Civil War, the essential characteristics of which were, in a normal manner, largely the products of the successive social and economic movements in this country. The materials presented in this study are organized in accordance with these logical divisions. The chapter devoted to each period is opened with a presentation of the background of contributing factors and influences, and it is closed with a summary of its significant characteristics and achievements.

The first period involved the formation of the early schools and the first attempts to devise a means of meeting the requirements of American architectural practice through the available facilities of the universities. It was a time of great industrial and political expansion, of free individualistic competition and of the "battle of the styles" in architecture. The schools were then highly individual, experimental, and provincially American in character. The period began with the establishment of the first school of architecture after the close of the



Civil War and ended with the supremacy of the Beaux-Arts system and Neo-Classicism. The advent of Neo-Classicism in the profession dates from the early eighteen nineties, but the majority of the schools did not change materially until some five years later. For this reason the early period in education may be assumed to close about 1898.

The second period was characterized by the domination of the principles and methods of the École des Beaux-Arts and by pure Eclecticism. It was a form of training which met the needs of the profession in an age of capitalistic control, of monopolies and the concentration of wealth in great metropolitan centers. The Neo-Classicism of the eighteen-nineties changed to a more general eclectic approach to architecture in the early years of the twentieth century. Early American education, characterized by wide variation among the different schools, gradually narrowed until, by 1912, rigid standardization became the significant note. At that time the education of Beaux-Arts Eclecticism may be considered as mature. The period continued through the post-World War years, with little further development, to the advent of the contemporary movement in 1925.

The third or present period began with the introduction into most of the schools of the first so-called Modern style. This ushered in the present-day movement, which through the last decade has gradually led to a sweeping change in both theory and processes of education. It corresponds in general to the collapse of our economic system and the subsequent years of attempted readjustment in the interests of the common individual, during which the profession has encountered so many grave and unprecedented problems. From the ideals of standardization the American system broadened once more to a condition of widely individual experiments in the different schools from which there is now evolving a greatly revised educational program.

In the study of the first period and the early portion of the second, the history of the separate schools is stressed because of their individual importance during the formative years. Also, comparatively little is commonly known regarding these interesting beginnings. Many basic problems are first noted as they existed in an embryonic state in the early schools; then these questions are discussed more completely in connection with their later development. Because of the growing emphasis upon the national organization and the tendency toward standardization as well as the greater number of schools, the individual institution is of far less importance in the later periods. Except for outstanding recent experiments, only significant events are included in the discussion of the separate schools.

The final chapter of this study consists of a restatement of the important points developed in the previous chapters, noting relationships and the evolution of these features throughout successive periods. This restatement is followed by a conclusion embodying a summary of the

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present trends and the essential characteristics of the new education for the practice of architecture.

*Present status of investigation of the problem.* As far as can be ascertained there have been but two other studies embracing the entire history of architectural education in the United States. Both were written after this study was begun, and both were entirely independent works. The first is included in the *Study of Architectural Schools*<sup>1</sup> by F. H. Bosworth, Jr. and Roy Childs Jones, published in 1932. The historical treatment is confined to the short introductory chapter of the survey, and it is, therefore, most limited and general in character. The second is a Master's degree thesis, by Thomas Larrick,<sup>2</sup> written under the direction of the Faculty of the Department of Architecture at the University of Kansas, and also completed in 1932. In this study, the emphasis was upon the creation of a scheme for an ideal modern school of architecture. The history of architectural education is again presented in the sense of an introduction to the final part of the thesis, and it is both abridged and written from a special standpoint.

Practitioners and educators have written and spoken briefly upon the subject, but these discussions have been limited to specific phases of the historical development of architectural education. They have been narrowly critical, often obviously biased, and the authors have made little attempt to obtain an accurate statement of facts. No complete study in this field has hitherto been made.

*Sources of data.* An effort was made to exhaust all sources for pertinent reference material; then to present in a complete and unbiased manner the development of each successive period in the history of architectural education in this country. As noted previously, few histories of the individual schools have been recorded. Accurate data upon many other branches of the subject has not been readily available. Much of it was gathered through visits by the author to the important schools and educational centers, both in the United States and in Europe, and by personal interviews and correspondence with those who were in a position to know the facts desired.

The investigator wishes to acknowledge the following chief sources of data for this study: *Study of Architectural Schools* by F. H. Bosworth, Jr. and Roy Childs Jones; the Minutes of the Annual Meetings of the Association of Collegiate Schools of Architecture; the Proceedings of the American Institute of Architects including Annual Reports of the Committee on Education; *The American Architect*; *The Architectural Record*; direct correspondence with the several schools of architecture and the Beaux-Arts Institute of Design.

<sup>1</sup>F. H. Bosworth, Jr., and Roy Childs Jones, *Study of Architectural Schools* (New York: Charles Scribner's Sons, 1932), pp. 3-10.

<sup>2</sup>Thomas Larrick, "A Modern School of Architecture" (unpublished Master's thesis, University of Kansas, Lawrence, Kansas, 1932), 165 pp.



## CHAPTER II

### THE EARLY PERIOD

A comprehensive movement in professional education must have as its basis the field of the profession, whether its objectives be entirely in line with current practices or an attempt at their reformation. In addition, however, to the background of mid-nineteenth century American architecture and the condition of the profession at that time, there were two major influences which qualified the character of early education in architecture in the United States.

The most powerful of these factors was the influence of the École des Beaux-Arts in Paris; in fact, the system identified with the École was the chief guide in America for over fifty years. This institution had been the leading one for the training of architects throughout the world for two centuries, and some of the greatest American practitioners of the Early Period in architectural education studied there. It was inevitable, then, that the École should be followed as a pattern by the American schools.

Of lesser importance was the influence of the educational systems for the training of architects then in vogue in England and Germany.

#### THE BACKGROUND OF NINETEENTH CENTURY AMERICAN ARCHITECTURE

The Georgian Colonial architecture of the eighteenth century was largely a product of late English Renaissance, modified by the social and climatic conditions in this new country and by the materials and building processes that were available. It was created by craftsman builders of Northwestern European, and for the most part English, lineage, who developed their art in a normal manner from the needs of the time and the natural qualities of local materials. In their building composition and details they turned for inspiration to the traditional Renaissance forms, interpreting them with a taste and a sense of design which was an expression of their cultural heritage from the Old World. Fundamentally the Georgian Colonial is to be classed as a phase of the late Renaissance.

*The advent of the Modern Era.* The freedom of inquiry which had developed during the Renaissance in Europe was applied in the eighteenth century, especially to history and to science. In the complex interplay of forces and tendencies that followed, two generally parallel movements resulted which distinguish the architecture of the nineteenth century from that of all the past. One of these was the evolution of engineering and the machine resulting in the Industrial Revolution; the other was the development of historical research and archaeology.

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The latter movement led on the one hand to the Classic Revival and on the other, through the strong influence of literature and as a reaction to the increasing mechanization of life, to Romanticism and the series of romantic revivals in architecture.

All of these movements tended to be intensified in the United States. The young nation with its rapidly expanding territory, industry, and commerce did not possess the restraining influence of conservative traditions and age-old culture as did Europe.

*The Industrial Revolution.* The development of engineering and the machine began in the mid-eighteenth century but belongs essentially to the nineteenth century. In the United States there was little of a transitional stage in industry between the old home type of production and modern factory manufacturing. The change in architecture, however, was more gradual and the effect of the Industrial Revolution was not pronounced during the first half of the century. After the Civil War and the triumph of the industrial North, this became the impelling force in all creative activity relating to architecture. In fact, the application of science and the machine to the requirements of life was the chief factor in the formation of that social and economic background which has indirectly determined all trends in modern architecture.<sup>1</sup>

The direct results of the new techniques in the processes of architecture were three-fold:

1. The gradual separation of the science of building construction from architecture. Until the Modern Era the architect and the designer of the structure were one. The materials with which he worked were simple wood and masonry and the structural problems were limited. As the elaborate science of engineering became applied to the construction of large buildings, however, the development of a separate and highly specialized profession became inevitable.

2. The tendency to separate the allied arts from architecture. The influence of the Puritan background in American culture had restricted the use of adornment from Colonial times. Regardless of this tradition, however, there was little place for the arts of painting and sculpture in connection with the mechanized processes of the nineteenth century. As Lewis Mumford says, the early domination of engineering as the supreme art was marked by the deterioration of all the traditional arts except those that by nature could retreat to the cloister.<sup>2</sup>

3. The deterioration of craftsmanship. The modern machine gradually replaced the hand tool in industry. Not only was the true nature of the new technique little understood, but the difference in the type of labor evolved by the machine tended to eliminate the craftsman with

<sup>1</sup>Leopold Arnaud, "Art in Education," Reprint from the *Columbia University Quarterly* (New York: Columbia Press, 1937), p. 40.

<sup>2</sup>Lewis Mumford, *The Arts*, Chapter XII, *Whither Mankind*, Charles Beard, editor (New York: Longmans, Green and Company, 1928), p. 311.



his sensitive contact with materials, creative sense of design, and personal pride in excellence of workmanship. A few of the skilled workers remained with the production of certain materials, but their influence was felt in only a small portion of the building industry. The change from the ancient tradition of the craftsman-architect to modern professionalism was one of the fundamental conditions of the time.

*The Classic Revival.* The archaeological studies of Roman monuments and their wide publication led to increasing interest in antiquity during the mid-eighteenth century in Europe. Also, as a natural reaction from the long domination of the Baroque with its freedom of form, architecture was impelled toward the simple and monumental masses and the studied details of ancient Classic examples. The first influences emanated from Rome which had been the background of the Renaissance, but interest expanded only slightly later to include the remains of the earlier Greek masterpieces.

The full force of the Classic Revival reached America in the years following the War of the Revolution and its effect upon architecture in the formative period of the young republic was marked. There were no well-established architectural traditions with the exception of those of the Georgian Colonial and such pre-Independence products were readily forsaken by the leaders in this country.<sup>3</sup> Buildings were needed for many purposes and especially to house the new democratic state and federal governments. The dignity, power, and impressiveness of the Roman monuments provided the architectural character desired, and the United States led the world in this movement at the beginning of the nineteenth century. By the second decade the emphasis began to shift, as it did in Europe, from the Roman phase to that of Greek inspiration. The Classic Revival dominated architecture especially in the field of the monumental public buildings until the middle of the century.

During the early part of the Classic Revival, as the rectangular Colonial compositions changed to the more varied and geometrically shaped plans and the details became more ordered and severe, some of the best examples of early American architecture were created. Especially was this true of the splendid porticoes of the middle and southern states. Good construction and craftsmanship tended also to persist during these years. Hitchcock states that there was little decline in construction until after 1825.<sup>4</sup> In the latter decades of the period, however, as the ultimate craze for the complete classic temple spread throughout the country, the ideal in design became merely the application of a copied shell of misunderstood Roman or Greek form regardless of the function or type of the building.

<sup>3</sup>Fiske Kimball, *American Architecture* (New York: The Bobbs-Merrill Company, 1928), p. 69.

<sup>4</sup>Henry Russell Hitchcock, Jr., *Modern Architecture* (New York: Payson and Clarke, Limited, 1929), p. 45.

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The ultimate decline of architecture under the conditions of the nineteenth century was inevitable and the Classic Revival represented only one early phase of the general tendency of the time. In another respect, however, it was of great importance. It established from the beginning of our national existence the dominance of the classic tradition, with its ideal of the simple, the formal, the chastened and the refined in architecture.

*Thomas Jefferson and the University of Virginia.* The founder of the Classic Revival in America was Thomas Jefferson. Although Jefferson was better known for his other achievements, his absorbing interest in architecture was a life-long one, beginning doubtless under the academic atmosphere of Williamsburg where he lived as a youth. He possessed the best library of architecture in the country and he had become a good designer in the current amateur fashion before the Revolutionary War.

Classic architecture, especially as interpreted and codified by Palladio, appealed to Jefferson's orderly mind. During the five years which he later spent in France as American Minister he was inspired by the Classic Revival movement as it was developing there and by the ancient Roman remains which he saw. The Maison Carrée at Nîmes seemed to him to embody the ideal of monumental dignity and power as well as obedience to fundamental natural laws which he desired for the architecture of his new nation. From this Roman temple he created the design for the Virginia State Capitol which was then of the most advanced Classic Revival manner in the world.

In addition to his revolutionary tendency in architecture and scholarly sense of design, Jefferson was an intelligent creative planner. He also gave careful consideration to materials and construction. When artisans were few who could execute the new classic forms, he trained workmen upon his estate.<sup>5</sup> His works are to be considered as masterpieces of the Classic Revival. The author of the Declaration of Inudependence was largely responsible for the establishment of this strong American tradition which was to form the basis of architectural education until the present period.

Jefferson's interest in higher education resulted in the founding of the University of Virginia for which he drew the plans. The scheme was arranged, as it still exists, in the form of "an academic village" rather than in one large building. With the expert counsel of William Thornton, the architect, and the aid of his granddaughter, Cornelia Randolph, Jefferson produced both scale and full-size details of all of the pavilions. At the time of the founding of the institution a chair of architecture was included and Jefferson proposed a professional school of architecture as early as 1814. The emphasis in the school lectures was upon the

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<sup>5</sup>Fiske Kimball, *Thomas Jefferson, Architect* (Boston: Riverside Press, 1916), p. 44.



history and principles of classic architecture and he intended that the examples which he had created upon the campus would be an inspiration to the students. The following is an extract from a letter on the designs for the University of Virginia buildings and grounds written by Thomas Jefferson to William Thornton in 1817:

The whole of the pavilions and dormitories are to be united by a colonade in front of the height of the lower story to the pavilions, under which they (the students) may go dry from school to school. The colonade will be of square brick pilasters (at first) with a Tuscan entablature. Now what we wish is that the pavilions, as they show themselves above the dormitories, shall be models of good taste and good architecture and of a variety of appearance, no two alike, so as to serve as specimens for the architectural lecturer. Will you set your imagination to work and sketch some designs for us?<sup>6</sup>

This early course in architecture with its cultural emphasis was regularly offered at the University of Virginia until the Civil War when it was discontinued, not to be revived until the founding of the present department in 1919. As an educational institution it had little effect upon the later professional schools of architecture.

*Romanticism.* Romanticism, as a movement in architecture, had its rise in the eighteenth century in Europe, paralleling the Classic Revival and becoming one of the dominant forces throughout the nineteenth century. It was related to certain aspects of the Classic Revival.<sup>7</sup> Romanticism, however, was based upon the doctrine of the importance of the individual and his freedom of expression rather than upon the rule of authority in design. It was analytical in point of view and emphasized that which tended to produce sensual delight. The source of its strength was in literature and a new appreciation of picturesque, natural landscape. Fostered by archaeology Romanticism embodied a sentimental reverence for the remote and the old and this emotional attitude toward the past tended to emphasize in each country that which was held to be the special national heritage in architecture.

The early stimulus in America came from the English romantic movement which found its normal architectural expression in the Gothic. This movement may be divided into three distinct periods. The first occurred in the last of the eighteenth century, being inspired by the English Perpendicular Gothic and applied for the most part to domestic types; the second followed in the first half of the nineteenth century and turned more to the early Gothic; the third was the Victorian Gothic period with its tendency toward freedom in composition and elaborate ornamental details, much of which was of Italian origin.

*The Gothic Revival.* The Gothic movement in this country was not entirely without precedent for the early American architecture of the

<sup>6</sup>Glenn Brown, F.A.I.A., Letters from Thomas Jefferson to William Thornton, architect, relating to the University of Virginia. *Journal of the American Institute of Architects*, 1:22, January, 1913.

<sup>7</sup>Geoffrey Scott, *The Architecture of Humanism* (Boston: Houghton Mifflin Company, 1914), p. 40.

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seventeenth century had followed the simple and more rural types of English domestic and religious work in which mediaeval character persisted, and a few Gothic details may be noted during the Georgian period. The Gothic Revival as a first phase of American Romanticism did not begin, however, until the eighteen-thirties and then largely in connection with religious buildings. There was nothing yet in America of distinctly national precedent, and it was natural that the designers should turn to their general European background and follow the current tendency in England which was, as stated above, then toward early English Gothic.

The active leader in the founding of the Gothic Revival in America was Richard Upjohn. He was trained in England as a cabinet maker and began his practice in this country in that general field.<sup>8</sup> Although many other commissions of this type followed, his Trinity Church in New York was the important example of the period. The influence of Richard Upjohn and his work gave to the early Gothic Revival a foundation of thorough craftsmanship and a design characterized by simple masses and good proportions of pure Gothic inspiration. As in the case of the Classic Revival, the carrying over into this first transitional period of much of pre-modern traditions, preserved an excellence of architecture and construction which did not disappear until toward the mid-century.

*The Post-Civil War Period.* The forces produced by the Industrial Revolution culminated during the last half of the nineteenth century. The manufacturing and merchant classes became the dominant element in American society. Immigration was heavy. Cities grew with unprecedented rapidity. The frontiers were pushed westward, constantly opening up new opportunities. It was the age of great individual competitive industrialism and expansion of capitalism.

From the beginning American culture and religion had tended to be separated from the elements of politics and business which controlled the course of the developing nation.<sup>9</sup> Especially during the post-Civil War period, the man of practical affairs and of action rather than the man of cultural ideas led in all creative activity. Conditions of life in the newly developed urban centers as well as on the frontiers fostered this tendency. Materialism and the worship of efficiency and pecuniary wealth increased. Charles Eliot Norton said at that time:

The "Nation" and the "North American" are almost the only evidences of thought in America, and they drag out a difficult existence in the midst of the richest millions of people in the world.<sup>10</sup>

<sup>8</sup>Everard Miller Upjohn, *Richard Upjohn, Architect and Churchman* (New York: Columbia University Press, 1939), p. 30.

<sup>9</sup>Joseph K. Hart, *Education for an Age of Power* (New York: Harper and Brothers, 1935), p. 37.

<sup>10</sup>*Letters of Charles Eliot Norton.* With Biographical Comment by Sara Norton and M. A. DeWolfe Howe. Vol. 1. (Boston: Houghton and Mifflin Company, 1913), p. 399.



The appreciation of architecture became in a great measure merely gratification of the sense of costliness.

The demand for buildings was great. The science of structural engineering had not yet been standardized, and there were no legal codes. As a phase of the moral let-down after the war, speculation and graft became common in the industry. Materials were cheapened and construction was hurried and flimsy. Collapses of public buildings were frequent occurrences.

In the new machine processes the operative became further separated from the architectural designer. The forms which he copied were unfamiliar and entirely foreign to his techniques. In certain fields, the newly-found powers of science and the machine could not be resisted; and there resulted the mass of uninspired scroll-saw and turned details in wood as well as the cast iron ornament.

The earlier American traditions had already been broken by the Classic and Gothic Revivals. The designers of this period, having lost contact with the technical and cultural sources and the creative impulses from which architecture is normally evolved, turned increasingly to the past for their ideas. The growing knowledge of archaeology and the history of architecture accelerated this trend.

Romanticism and especially English Romanticism then in its third period, that of the Victorian Gothic, dominated architecture. The popular writings of John Ruskin and his followers in this country were a strong influence in the movement. There were introduced, in rapid succession, the American Victorian Gothic, versions of French Romance begun by Richard Morris Hunt, the Richardson Romanesque, and the Queen Anne style. The "Cult of the Alps" influenced the machine cut wooden counterpart of the Victorian Gothic which resulted in the "gingerbread" types so common throughout the United States. In all this "Battle of the Styles" the point of view of the designer was romantic.

Very few of the architects of this period had visited Europe. Their information was based upon vague memories or upon reproductions. Both the wood cuts and the lithographic illustrations tended to slur over details. This necessitated a type of originality which was characteristic of the time and which often degenerated into emphasis upon mere novelty.

The earlier classic tradition persisted here and there in monumental and governmental buildings, but the tendency during the post-Civil War period was toward a free and confused use of historic styles and a riot of clumsy form. This was accompanied by a rapid deterioration of taste and general sense of proportion and fitness in design. American architecture reached its lowest ebb at approximately the period of the Centennial Exposition in Philadelphia in 1876.<sup>11</sup> This was the

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<sup>11</sup>George H. Edgell, *American Architecture of Today* (New York: Charles Scribner's Sons, 1928), p. 35.

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time when the first professional schools of architecture were being established.

*The early movement toward a modern American architecture and its defeat.* In spite of the many handicaps, the germ of a more indigenous American architecture was slowly forming. Especially was this true in the rapidly growing cities of the new West. In general the excellent work of Henry Hobson Richardson in the eighteen-eighties served through its influence only to feed the fires of free Romanticism, but his smaller buildings such as his domestic work and railroad stations, where practical conditions rather than stylistic sources governed his design, were significant. It was, however, in the purely industrial structures that the new architecture is most clearly indicated. At that time the justification of these new types was that in such fields as industrial buildings there was no need for aesthetic expression. Being close to the spirit of the industrial era, these early developments clearly reflect the influence of an honest solution of new functional needs.<sup>12</sup>

The discovery and use of a new material has always been a primary impetus to new architectural achievements. The coming of steel was no exception in providing the spark which seemed, for a time, to inspire the beginnings of a new architecture. In the early eighties rolled sections of steel had to be imported and, with the heavy walls and squatty round arches of the Richardson influence, there was little demand for it. Steel framing was used, however, in portions of wall construction as early as 1883, and by 1885 Holabird and Roche had completed the Tacoma Building in Chicago, using steel throughout and solving the new architectural problem in a direct and frank manner. The great engineering works such as the Brooklyn Bridge doubtless exerted a strong influence toward the adoption of this material, but it was the American office buildings which popularized the use of steel in construction.<sup>13</sup> By 1890, the year in which Louis Sullivan designed the Wainwright Building in St. Louis, the steel frame had come into general use in skyscraper design.

Louis Sullivan believed in a return to the fundamental aesthetic principle that function and structure constitute a logical source for inspiration in architecture. To him the new material demanded, as he expressed it, "a revolutionary architectural mode." In general, his designs carried a flavor of his great predecessor, Richardson, but he attempted to free himself from masonry traditions, abandoning the wall, and adopting the slender vertical pier of steel suggestion. The Schlesinger-Mayer Building at Chicago completed in 1900 was almost a pure expression of the modern steel-framed structure. His continual search for more

<sup>12</sup>Lewis Mumford, *The Culture of Cities* (New York: Harcourt, Brace and Company, 1938), p. 405.

<sup>13</sup>Sheldon Cheney, *The New World Architecture* (New York: Tudor Publishing Company, 1935), p. 312.



appropriate forms doubtless would have early led to a distinctly contemporary architecture if this had not been eclipsed by another and stronger influence. Sullivan's work created much interest and exerted some influence for a time, but the effort to express structural character was confined largely to the West. There were merely slight traces of it in contemporary Eastern architecture when in the eighteen-nineties this early American modern movement as well as American Romanticism gave way to Neo-Classicism.

*Conditions in practice in the United States.* Before the Civil War the few practitioners who possessed any technical training had acquired it in England, and the only method of qualifying for practice available in the United States was by apprenticeship in the office of an architect. The employment of this method was a result of the influence of English traditions. It differed, however, from the organized English pupilage system in that the beginner merely picked up what information he could about the office. In reality little professional training was necessary. The ability to use the tee-square and drawing pen, together with a slight knowledge of materials and simple methods of construction that could be acquired from the carpenters and masons on the job, was considered sufficient. Many of the most reputable American architectural offices continued, at a much later date than the post-Civil War period, to believe that information and practice obtained by the "self-made" method were preferable to "technology," and that schools of architecture were unnecessary.

Professional standards were very low, in fact, there was little evidence of professional ethics. C. H. Blackall writes of this period:

Queen Anne was rampant through the land and Eastlake was the acme of decorative possibility. The architects were paid 5% commission, if they got it. There were no professional draftsmen and no corps of Beaux-Arts men to draw from. The architects who had studied abroad could almost be numbered on the fingers of one hand. . . . The American Institute of Architects in those days was a struggling infant of less than ten years and while nominally national, was really a very small New York Society of elderly dilettante architects who looked with distrust on any young man who proposed to draw with anything softer than a 6H pencil. . . . We had a hazy knowledge in regard to foundations and in Chicago they were trying to float heavy buildings on soft mud. Steam heating existed, to be sure, but none of us knew enough to question why the results of our so-called engineers were so unsatisfactory. We had no kodaks, no phonographs; and, in fact, measured by the standards of today, we fifty years ago were a pretty poor profession, with few experienced builders to back up our ideas, no aggregations of capital to draw on and a very restricted possibility in clients and in opportunity.<sup>14</sup>

During the years following the war, improved standards of practice began to be recognized, and, with the introduction of modern methods of construction and equipment, building requirements tended to become more exacting. Educational progress was slow in the daily routine of

<sup>14</sup>C. H. Blackall, F.A.I.A., "Fifty Years Ago," *American Architect*, 129:7-9, January 5, 1926.



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the office, and the ultimate attainment of the student was uncertain. The need for a more thorough training, especially in the science of modern construction, in time became apparent to many of the leaders in the profession.

*The American Institute of Architects.* Until the eighteen-thirties American architectural practice was limited almost entirely to the interests and hobbies of cultured gentlemen. Benjamin Henry Latrobe, a man of thorough English training, maintained the first professional office of any wide practice in the United States,<sup>15</sup> fifty years before the first professional school of architecture was established. By the middle of the nineteenth century, the number of professional architects had grown throughout the United States, but only a few offices, even in the largest cities, were well equipped, and, as noted above, practice was very irregular. In an attempt to raise the standards, the American Institute of Architects was organized, and it became the dominant force in the improvement of conditions within the profession.

A dozen men of some architectural training had begun an organization called the American "Institution" of Architects in 1837, which had for its purpose "the advancement of architectural science in the United States." Its organization was contemporaneous with the inception of the Royal Institute of British Architects. It was, however, premature; ten years later there followed another attempt, which also failed. In 1857, a new organization was formed, and incorporated as the American Institute of Architects. Thirteen New York architects gathered at the first meeting in the office of Richard Upjohn, none of whom had belonged to the previous organization.<sup>16</sup> They invited eighteen others—thirteen from New York, three from Boston, and two from Providence—to join with them in framing the constitution. They were banded together, as they expressed it, for their individual betterment through friendly intercourse and counsel, and for the betterment of the profession.<sup>17</sup> Richard Upjohn was elected the first president, while Richard M. Hunt was chosen secretary. Upjohn was the president and guiding spirit of the Institute for nineteen years.

Since the Institute immediately recognized the importance of education, a Committee on Education was appointed. This committee has continued to form a major unit in the organization of the Institute and has been a strong factor in molding its educational policy.

In 1867, the Committee on Education proposed the founding of a great central school under the guidance of the Institute. It was to have

<sup>15</sup>Fiske Kimball, *American Architecture* (New York: Bobbs-Merrill Company, 1928), p. 97.

<sup>16</sup>Upjohn, *op. cit.*, p. 158.

<sup>17</sup>*Minutes of the First Annual Convention of the American Institute of Architects*, New York, October 22, 1867. Proceedings, American Institute of Architects, Vol. 1, p. 6.



been located in New York and to have consisted of three divisions: First, or "Preparatory" with a curriculum of general studies; Second, or "Polytechnic" composed largely of scientific studies and construction; Third, or "Academic" devoted chiefly to the history of architecture, drawing, and the practical solution of problems.<sup>18</sup> Well illustrating the attitude of the profession, the science of construction received the great emphasis, and design, as such, was scarcely mentioned. The entire plan was rather visionary and was abandoned after about three years of agitation. At the Convention of 1876, it was suggested that, instead of a national school, it would be preferable for the chapters to attempt the establishment of local schools, but this interest in education later took the form of encouraging the struggling departments in the universities as they began to spring up over the country. The American universities constituted the established institutions of higher learning in this country, and it was inevitable that architectural training be connected with them.

As the schools of architecture developed, it was a natural consequence that their leaders should assume control of the Committee on Education. During the eighteen-eighties the Committee became an outlet for discussions on details of curriculum content and bickerings over school policies. On the other hand, from time to time, professional members of the committee made criticisms and suggested reforms in the schools, when they could scarcely have been aware of the real nature of the problems involved and the work that was being accomplished within the institutions.

Gradually, however, a more satisfactory policy was established. The Committee came to act more in an advisory capacity, serving to keep the Institute in touch with the work of the schools. The personnel being largely composed of practicing architects who were not in direct touch with school problems, its influence upon formal education came to be only indirect. The Committee's great contribution has always been the formulation and expression of the broad educational problems of the profession as only actively engaged architects could sense them, those factors pertaining to the procedures within the schools being referred to educators.

#### THE ÉCOLE DES BEAUX-ARTS

*A brief history of the school.* The French Academy of Architecture, which was founded in 1671 under Colbert, was composed originally of eight of the greatest French architects. Previous to this time architectural training had been available only through the apprenticeship method, and the French leaders felt that an organized school for the teaching of architecture was necessary. Louis XIV expressed this important objective of the Academy when he said:

<sup>18</sup>*Ibid.*, pp. 13-16.



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They must teach publicly the best and most correct rules of architecture in order to enable a seminary of young artists to be formed.<sup>19</sup>

Under the direction of the Academy instruction was given on two days of each week, the school enrollment being limited to twenty-eight.

With the king's approval a system of prizes was instituted which culminated in 1720 in the establishment of the Grand Prix de Rome entitling the winners to the completion of their studies in Rome at Royal expense. Claude Perrault was the author of a French edition of *Vitruvius*, published in 1673. Desgodetz was sent to Rome by Colbert to make measured drawings of the antique monuments, and he published his work in 1682 as *Les Edifices Antique de Rome*. Later, he gave lectures on the classic orders and their application.

This was the period of the Renaissance in France with its strong influence from seventeenth century Italy. It was inevitable then that, from the beginning, the principles of the Renaissance, with ancient Rome as the chief source of inspiration for its classic abstract forms, should dominate the philosophy of architectural design at the École des Beaux-Arts.

In addition to the instruction in architectural design, lectures were given in mathematics, mechanics, construction, perspective, and the science of fortifications.

The first independent atelier was organized in 1750 by Jean Francois Blondel. During the Revolution, and up to 1816, the Academy was suppressed; but instruction continued in the school, which took the form of a semi-private atelier. The École des Beaux-Arts was constituted in 1819, embracing two departments: one for architecture, and the other for painting and sculpture.

In 1864, just prior to the establishment of the first American school of architecture, the École was reorganized and separated administratively from the Academy. Three official ateliers were then established, a professor or "Chef d'Atelier" being placed over each studio. Other independent ateliers also began to spring up at this time under famous architects as patrons, largely as a result of the antagonism toward the non-classic, functional teachings of Viollet-le-Duc, who was then the director, and the revision in methods that he attempted to effect. From about this time, less emphasis began to be placed upon style in the judgments, the school becoming more eclectic in its attitude. The rigid classic forms tended to soften under the influence of French Romanticism. Later the general course of study was also partially revised to meet the demands of modern requirements of practice and the principles of teaching settled, so that there was little further modification during the period of influence upon American education.

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<sup>19</sup>Paper by Paul Leon, Directeur des Beaux-Arts, "Architectural Education of the Past: France." *Proceedings, First International Congress on Architectural Education*, London: July 28-August 2, 1924, p. 16.



From its earliest inception the French school was controlled by an established system of teaching architecture. The instructors were, however, closely allied with practice, and the character of the problems were varied from time to time, representing contemporary conditions and the best French thought during succeeding periods.

During the time of its greatest influence upon architectural education in the United States, the general curriculum requirements were as follows:

*Entrance requirements.*

1. Architectural Design—A 12-hour sketch *en loge*.
2. Drawing from a Cast—An architectural fragment.
3. Modeling from Ornament in Relief—This was added in 1883.
4. Mathematics—Arithmetic, algebra, and geometry.
5. Descriptive Geometry—General problems in lines, planes and developments.
6. General History—Ancient and modern European.<sup>20</sup>

An entrance examination in these subjects was given twice each year and only a limited number of those receiving the highest rating were accepted. The first three subjects were called "admissables" for failure in any one of these barred examination in the other subjects. The applicant had usually acquired previous knowledge in these subjects, but he regularly entered an atelier for study some six months prior to the examination.

The curriculum in architecture was composed of a lower and upper division named respectively, Second and First Class. Promotion was gained by means of points or values in the various courses, the curriculum being very flexible. A minimum number of values was required, however, in each subject for promotion.

*The course of study for the second class.*

1. Architectural Design:

- a. Order Problems and Details—Doorways, cornices, etc., with emphasis upon draftsmanship and rendering.
- b. *Analytiques and Projets*.
- c. Twelve-hour Sketch Problems.
- d. Archaeology *Projets*—Given by the history of architecture instructor.

2. Lectures, accompanied by drawings and examinations in the following subjects:

- a. Mathematics—Trigonometry and analytical geometry and theoretical mechanics.
- b. Descriptive Geometry—Theoretical shades and shadows, tangent planes, intersection of surfaces, surfaces of revolution, conic sections, etc.
- c. Stereotomy—Stone-cutting and wood-framing and surveying.
- d. Perspective.

<sup>20</sup>Henry d'Herville, *La Section d'architecture. A l'École National et Speciale des Beaux-Arts* (Librairie de la Construction Moderne. 13 rue Bonaparte, Paris, 1894), p. 7, 86 and 100.

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- e. Construction—Lectures on geology, physics and chemistry as applied to construction. Studies in stone, wood and iron construction, with working drawings and specifications for a complete building. These projects were completed in the ateliers.
  - f. Lectures in History of Architecture—Ancient, medieval and modern. Exercises with the above archaeology *projets*.
3. Freehand Drawing and Modeling—Twelve Hour Studies:
- a. Freehand Drawing from Casts—Fragments of ornament.
  - b. Drawing from the Antique Figure.
  - c. Modeling from Casts of Bas-relief.

*The course of study for the first class.*

1. Architectural Design:

- a. Advanced *Projets*.
- b. Sketch Problems.
- c. Archaeology *Projets*.
- d. Composition in Ornament.

2. Drawing and Modeling:

- a. Drawing from the Human Figure—Nude.
- b. Modeling of Ornament—In the round.

These courses in advanced drawing and modeling were collaborative with the departments of Painting and Sculpture and were not a definite requirement for architects.

3. Lectures in Building and Professional Practice.<sup>21</sup>

*The Diplôme.* Previous to 1862, when the first examination for the Diplôme d'Architecture was given, there had been no recognition of completion of training at the École. A specified number of values in design of the first class were required for candidacy for the Diplôme. The examination, which was given yearly, consisted of the designing of a building, complete with working drawings, full-size details, and specifications. Six months were allowed in which to complete the problem. An oral examination was also given in connection with this design, including the construction and the specified materials, and another oral examination on the history of architecture, physics and chemistry as applied to construction, and building law. About six years, on an average, were required to complete the entire course and obtain the Diplôme.

*Important factors in the École which influenced education in the United States.* Certain factors in the organization and educational program of the École had a definite influence on education in architecture in the United States. These factors may be stated as follows:

1. The rigid entrance examination. The selection of entering students by an examination was one of the chief characteristics of the École. This procedure insured the selection of a group of serious and well-prepared students, and made possible the maintenance of high standards in the courses. Because of their affiliation with the more democratic

<sup>21</sup>*Réglement de l'École Nationale et Speciale des Beaux-Arts. École des Beaux-Arts, Paris, 1878. p. 21.*



universities of this country, this ideal was never attained in the schools of architecture in the United States. Much of the criticism of American architectural training has grown out of this basic difference between the two systems.

2. The instructors in the École were practicing architects of high repute. Instruction in design was entrusted to the most important leaders in the profession as patrons in the ateliers. They were usually winners of the Grand Prix de Rome, with the best training obtainable, and engaged in some of the great public building projects of France. They were also, as a rule, recognized teachers, men possessing to a marked degree the ability quickly to perceive the merits as well as the faults of their students' work, and to inspire them in the development of their solutions. One of the patrons of the school, J. L. Pascal, gave the following summary of this policy in 1906:

We believe that our art should be taught by professionals, by practitioners, by artists (aided, naturally, by specialists who must furnish the scientific baggage which is indispensable to our profession), but above all, by artists who are charged with this function, as we say, "par dessus le marche."<sup>22</sup>

3. Individual instruction. With the exception of the relatively unimportant lecture courses, all instruction was individual, and the relationship of patron to pupil was excellent from the pedagogical standpoint. Education was largely a matter of individual effort and mutual cooperation, and the teaching problem scarcely existed. Upon the success of the student in his atelier depended the reputation of the patron, and his responsibility in the field of education was taken very seriously.

4. Student progress was measured by quality of work rather than by periods of time. The amount of work undertaken was the responsibility of the student, and it was entirely on the basis of objective values, awarded by an outside jury, that all promotions were made.

5. Methods of instruction were based upon individual competition. The men all worked together in the atelier with practically no restraint, criticized each other's work, discussed difficult points, and observed the qualities which enabled the strong man to forge ahead. There was also rivalry among the different ateliers, and one member's success meant the success of the entire group, so that there was little personal jealousy among the students.

6. The incentive of prizes. The École offered many endowed prizes as an encouragement to greater educational effort and gave the assurance of greater opportunities for the outstanding students.

7. The influence of advanced students. The older men advised the beginners, who, in turn, "niggered" for the seniors. This mutual cooperation of the students, and the constant influence of *les anciens* on the younger students was one of the most important factors in the life of the

<sup>22</sup>J. L. Pascal, "Policy of the École des Beaux-Arts," *American Architect*, 89:48, February 10, 1906.



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school. This again was an ideal often urged upon American students but seldom realized.

8. Emphasis upon design. The great emphasis was placed upon design with a basis in aesthetic considerations. The allied subjects of mathematics, science, construction, history of architecture, and drawing were held to be fundamental but secondary in importance to the study of design.

9. The school program and its development. The design *projet* program included only the important building elements arranged to meet the needs of a school problem. Little allowance was made for such factors as locality of site. Materials and utilitarian details were ignored. The requirements as laid down in the program were faithfully followed, and the solution of these requirements by plan was the essential part of the problem. The plan was the important element in design. A logical, well-organized and beautiful plan was held to lead naturally to a good composition with beautiful facades and interiors. The proportions and typical arrangements were based largely upon theoretical aesthetic considerations which led to the criticism in this country that the École student designed by the eye alone. Sound methods of construction were, however, taken into account, and the composition was required to be "buildable." Architecture had to be truthful and it was necessary for the adequacy of structure not only to be actual in the modern sense but apparent in the design. These principles were adhered to in the final judgments.

10. The theory of the *esquisse*. In the design projects the preliminary sketch or *esquisse* was completed nominally without assistance of any kind or *en loge*. The general requirements of the building, as laid down in a program, were analyzed and formulated into a *parti* by the student, and emphasis was placed upon the quick grasp of a logical solution. This method produced a variety in the problems and confined each student to the development of a single general scheme. The consistent study of the chosen *parti*, and the overcoming of the handicaps and limitations imposed by an *esquisse*, decided upon without sufficient study to form an intelligent conclusion, were considered to be of greater value than the evolving of the best possible solution of the program. The principal objective was the development of a direct method of attack in any architectural problem.

11. Rendering. The final presentations were drawn on a large scale and elaborately rendered. The techniques used were those which had become traditional of the school. The motifs, though their bases lay in architectural facts, had been developed largely as an artificial means of expressing the important elements of the architectural scheme on paper and of creating a beautiful paper effect. This feature of the École provoked much criticism from the practical American architect.

12. The judgment. The completed problems were collected at the



time of *rendu* and judged by a jury of disinterested architects. It was upon the awards of the judgment that all measures of student accomplishment and all promotions were based.

13. The educational philosophy of the École. The École attempted to teach only the discipline of conservative fundamentals in design, as these had been crystallized throughout its long history. Utilitarian details were ignored or deferred to later professional experience. Fads and novelties were resisted, and there was little place for sentimentalism or the picturesque. It was the formal and monumental in design that was always stressed. The basis for this philosophy lay in the Renaissance background of the École and its inherent emphasis upon the Classic ideal. As was stated previously, a direct contact with Rome was established from the first. The Grand Prix de Rome became the ultimate objective of every ambitious student, and the winning scholars were given the opportunity to delve at first hand in the antiquities of classic architecture. Many of them in turn became leading patrons of the school. It was the absolute rule of the classic tradition which remained the great guiding principle of the École.

#### THE ENGLISH AND GERMAN SYSTEMS OF ARCHITECTURAL EDUCATION

*The English educational system.* The pupilage method of architectural training was almost universal in England until 1894, when the first professional school of architecture was organized at the University of Liverpool.<sup>23</sup> A few informal courses in architecture were offered during the period of influence upon early American education. Such a school was maintained at South Kensington, and the Architectural Association conducted some classes at London. The Royal Academy had always manifested an interest in education, and active classes were established by this institution in 1808. Many of the greatest English architects of the nineteenth century attended these Academy courses.<sup>24</sup> Travel and study abroad after the period of pupilage also became, to an increasing degree, the essential culmination of an architect's education. A thorough technical training, however, could be obtained only in the office of a practicing architect.

In the latter half of the century, the Royal Institute of British Architects gradually established an increasingly strict series of examinations for the purpose of raising the standards of professional practice.<sup>25</sup> The passing of these examinations gave the young architect the right to an associate membership in the national society, and permission to hang out

<sup>23</sup>*Prospectus* of the School of Architecture, University of Liverpool Session, 1928-29, p. 5.

<sup>24</sup>Martin S. Briggs, F.R.I.B.A., *The Architect in History* (Oxford: Clarendon Press, 1927), p. 332.

<sup>25</sup>Paul Waterhouse, "A Note on Architectural Training of the Past, with Special Reference to England," *Proceedings of the First International Congress on Architectural Education*, London, July 28-August 2, 1924, p. 31.

his "brass plate" as a recognized architect. It was the need of preparation for these examinations, coupled with the growing necessity for technical training in engineering and modern construction, that led to the establishment of the professional schools in England. Except for the continued tendency to emphasize the office practice side of architecture, as a remnant of the pupilage system, these English schools were patterned after the French and American methods, and, being relatively late in their development, they need not be considered in the present study.

Since the pupilage system long had its counterpart in the United States, its essential characteristics should be noted. No definite rules were recognized in the training procedure. The student was "articled" to a practicing architect for a nominal fee, where he picked up what knowledge he could through his contact with the chosen master and his office. Both quantity and quality of the instruction varied greatly. In most cases the architect was most conscientious in regard to his responsibility toward his apprentices, and was, himself, a good and thorough teacher; in some of the offices the pupils were thought of as little more than a fruitful source of revenue, and occasionally as a means of securing unpaid help. Paul Waterhouse, one of the greatest English educators in the field of architecture and past President of the Royal Institute of British Architects, made the following interesting statement in regard to the pupils of Sir John Soane:

Between the years of 1784 and 1837, no less than fifty-five men passed through Soane's atelier in one capacity or another. Thirty of these were genuine pupils; the rest were assistants or improvers. . . . Soane gave his pupils plenty of practical work, including surveying, measuring, casting and superintendence, as well as the making of working drawings. But he also, it is clear, established a brilliant academy of fine draughtsmanship.

Probably, with about three possible exceptions, no architect since his time has ever provided in his own office—and that a busy office—such a complete or refined education for pupils.<sup>26</sup>

As an important feature of the pupilage method, the students measured good examples of existing buildings of every period in England, and made finished drawings of them.<sup>27</sup> This method of study owed much of its popularity to the fact that it could be carried on with little assistance from an instructor, and also to the encouragement of the Royal Institute of British Architects and of the Royal Academy to which the drawings were sent for judgment, and, if they were accepted, for exhibition. There is much that may be said in favor of this educational procedure. In the United States, however, there were few examples of architecture that were worthy of such study, and to measure carefully and draw up an existing building required more time than was often available in either the busy American offices or in the crowded curriculum of the schools.

<sup>26</sup>Waterhouse, *loc. cit.*

<sup>27</sup>Briggs, *op. cit.*, p. 355.



The pupilage method could not afford a well-rounded training. It was necessarily lacking in any thorough study of the sciences of construction, and little opportunity was afforded for development in creative design. The student's experience consisted of contact with buildings, either completed or in the process of construction, and with the actual office routine. Thus it tended to produce good office men, well-grounded in English traditions of design and practical methods of construction, but not brilliant designers.

*The German educational system.* The German architectural schools were closely linked with engineering in the Technische Hochschulen or polytechnic schools. The entrance requirements for the regular course were graduation from the gymnasium, and at least a half year of experience in an office. The student entered with a fair knowledge of drawing, mathematics, and physics which formed a good foundation for the work in science and construction, which was greatly emphasized.<sup>28</sup>

There was a regular first curriculum of two years duration. If the student desired to continue his professional education, he was then required to spend three years under government appointment, as inspector or clerk, on a government building, after which he entered the advanced course. This was also two years in length, and was, for the most part, a continuation of the first course. After successfully completing the entire program, the student was eligible for the State diploma.

The work in freehand drawing and history of architecture was similar to that of the École des Beaux-Arts, except that there was usually less drawing from life than at the École. The student began in the study of design by copying the work of well-known German architects; and later, when he attempted more original studies, they consisted largely of adaptations of the designs of these masters. As in England, measured drawings, especially details, were made of recognized examples. The principles of design were to be inculcated by the study of the architecture of the German masters and by actual contact with the best examples of current government work. In this policy the German school was similar to the English system, but it was much more thorough and stressed greatly the scientific approach to the study of construction. Designs were carried through to the working drawing stage, the structural elements were computed, and the plumbing, heating, and lighting equipment specified. The German system was long, rigid and technical, with little opportunity for individual freedom or originality in design.<sup>29</sup>

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<sup>28</sup>F. W. Redich, "To What Extent Are Foreign Systems Applicable to American Conditions," *Minutes of the Fifth Annual Meeting of the Association of Collegiate Schools of Architecture*, Minneapolis, Minnesota: December 5, 1916, p. 39.

<sup>29</sup>R. Phené Spiers, *The French Diplôme d'Architecture and the German System of Architectural Education. The Transactions*, Royal Institute of British Architects, Session 1883-84, London, September, 1884, pp. 123 and 124.



## THE BEGINNING OF AMERICAN EDUCATION IN ARCHITECTURE

The first American student to seek instruction at the École des Beaux-Arts was Richard Morris Hunt, a young man who later became the leading architect of his time. Hunt studied and worked in France from 1845 to 1855 and, upon his return to the United States, established his practice in New York. Fired with enthusiasm for the great European masterpieces, he became America's early exponent of Romanticism. He would have made of Fifth Avenue a Rue de Rivoli and of the Hudson a Loire Valley.

In 1857 Hunt opened an atelier in the old Studio Building on Tenth Street, in which he transmitted to a few promising young students the principles he had learned at the École and the inspiration he had derived from the historic monuments of Europe. It was under his influence that architectural education had its beginning in the United States for, according to Professor Hamlin, "This modest atelier of Hunt's became the nursery of architectural education in America."<sup>30</sup> Many architects of distinction obtained their early training in this atelier; and one of them was William Robert Ware, to whom the United States owes, in a large degree, the organization and character of its early schools of architecture.

Ware graduated from Harvard College in 1852. Then he returned to take the engineering courses at the Lawrence Scientific School of Harvard, after which he entered Hunt's atelier in New York. In 1860 he opened his office in Boston, later taking into partnership Henry Van Brunt, with whom he practiced until leaving for Columbia University in 1881.

Van Brunt had also been a pupil in Hunt's atelier, and Ware and Van Brunt maintained an atelier in their own office, after the manner of their former patron.<sup>31</sup> Van Brunt did not visit Europe, but he was a scholar with a refined sense of design. Ware, who had a natural gift and love for teaching, organized a two-year course for their pupils, devoting to their instruction all of the time not required by the duties of the office. In 1865, when the Massachusetts Institute of Technology determined to establish a professional course in architecture, it was this little atelier and its enthusiastic and scholarly young patron that attracted the Institute's attention; and, as a result, Ware was appointed director of this first school in the United States, which was also the first school of architecture to be established in an Anglo-Saxon country.<sup>32</sup>

<sup>30</sup>Editorial, *Technology Architectural Review*, 1:7, February 15, 1888.

<sup>31</sup>William Robert Ware, "Condition of Architecture and Architectural Education in the United States," *Journal of the Royal Institute of British Architects*. Paper read at the general meeting of the R.I.B.A., London, January 28, 1867.

<sup>32</sup>William Emerson, "History of the Architectural Department," Massachusetts Institute of Technology, *Technical Engineering News*, 4:310, February, 1924.



## MASSACHUSETTS INSTITUTE OF TECHNOLOGY

*Organization of instruction in architecture.* Instruction did not begin at the Massachusetts Institute of Technology for over two years after the appointment of Ware as director. During this time he made a thorough investigation before attempting his organization. For nearly a year, he observed the methods of instruction and consulted with the leaders in architectural education in London and Paris. He did not attempt to enter the École des Beaux-Arts, but he took private lessons from an advanced student in order to learn about its methods of instruction. It was, doubtless, the wise counsel of the great European teachers that enabled Ware to lay so successfully the foundations for architectural education in the United States.

Ware also collected a valuable nucleus for reference equipment of casts, photographs and drawings. In this effort, he was greatly assisted by private contributions of money from the United States and by the courtesy of many foreign architects, especially those connected with the French school.

In the fall of 1868, the department opened with four students enrolled. Ware continued his practice and, for a time, gave all of the instruction in architecture at the school. As has since been the case in so many schools, architecture began as a few meager classes closely allied to engineering. At first professional work was relegated largely to the fourth year, but in 1874 the orders and history of architecture were placed down in the second year, the first year only remaining common with the engineering departments.

An opportunity was provided for draftsmen to take a short special course, and as early as 1872 there was offered a special postgraduate program for advanced students. This graduate work was composed largely of working drawings, specifications, and design. In 1874 the working drawings and specifications course was allotted to the third and fourth years, and in its place a course in measured drawings from well-known Boston examples was introduced. In this manner the graduate work became almost entirely devoted to design.

The degree given at Massachusetts Institute of Technology was Bachelor of Science in Architecture. The early graduate degree was Master of Science in Architecture.

By the end of four years it was obvious to Ware that the school needed a well-qualified instructor in design, such as could not be obtained in the United States. To fill this position he turned to the École des Beaux-Arts where he made a most fortunate choice in Eugene Létang. Létang, who was then thirty years of age, had received his first training as a stone-cutter with his father in the Loire River Valley, and later he had attended the École. He could not speak a word of English at the time of his appointment, and it was necessary for Ware to meet him upon his arrival in New York. Sensitive, facile in imagination, enthusi-



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astic, and extremely critical, with a natural as well as acquired refinement, Létang became the first great design teacher in America.

The first student to complete the four-year course was Henry A. Phillips, who graduated in 1873. Although he did not follow the profession, this first American graduate in architecture always retained a sincere admiration for the school, visiting it at least once a year until his death in 1926.<sup>33</sup>

These early years were ones of heroic struggle, but in spite of a deplorable lack of equipment, the quality of the student work improved. In 1875-76, ten years after the inception of the school, there were thirty-two students and ten regular applicants for the degree. In the report of that year the list of working equipment included about 750 casts of architectural details and sculpture; 1400 stereoscopic views, small card photographs and lantern slides; about 1000 prints of architectural subjects; nearly 2000 larger photographs; a considerable collection of models, specimens of stained glass, tiles, terracotta, and other decorative materials. The library contained four hundred volumes. The school also possessed a series of twenty-seven drawings secured from the École des Beaux-Arts and the French Academy at Rome, which was the feature of greatest value to the students. Included in the collection were the designs by M. Escalier for the Grand Prix and the superb academy drawings of M. Brune, a professor in the École.

In 1881, Ware was called by Columbia University to apply his well-demonstrated ability in the establishment of another great architectural school. The change in leadership marked the close of the first period of development at the Massachusetts Institute of Technology.

*Important principles established by Ware at Massachusetts Institute of Technology.* Because of the strong influence upon architectural education, there should be noted at this point some of the important characteristics of Ware's system of instruction at this first school of architecture in the United States. Many of his convictions were stated in an address delivered before the Royal Institute of British Architects during his visit to England in 1867, from which the following excerpt is taken:

In the teaching of architecture as a profession we propose to do nothing that can be dispensed with, leaving matters that can be learned in offices to be learned there and not encumbering the student with useless and irrelevant lore. At the same time, we recognize the fact that many practical matters whose details may best be learned by office work, need a systematic and theoretical discussion for their proper comprehension, and this discussion we propose to afford. We also recognize the architect's need of a liberal culture in his art, and extensive learning, at least to the extent of having explored the field it covers, and knowing where to find detailed information. Nor do we consider acquaintance with the other arts of design either useless or irrelevant, but regard a practical knowledge of the industrial arts, so far as it can be obtained, as being even more serviceable than technical knowledge of the fine arts, in developing and dis-

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<sup>33</sup>Emerson, *loc. cit.*



ciplining the ideas of proportion, harmony, and aesthetic expression, by means of subordination and contrast, upon which architectural composition depends.<sup>34</sup>

In historic research and in the study of construction and professional procedure, we propose to treat our classes rather as students than pupils, leading them, under the necessary guidance and control, to pursue a course of independent study and individual investigation; each contributing to the common stock his labors.

The constant practice of design, which, when the topics chosen and the data given are suited to the student's state of development, seems to be the most efficient and wholesome, as it is undoubtedly the most stimulating method of study, we propose to employ with great freedom, not only as an exercise in modern architectural composition, but as an auxiliary to the study of the history of architecture. In these exercises, competition rather than cooperation comes naturally into play, and we propose to establish real and nominal prizes, as the circumstances may determine, as an incentive. The occasional delivery of special lectures on special subjects by persons specially qualified to treat of them is the only remaining feature of the plan that need be mentioned.

The principle that instructors should not sit in judgment upon the work of their own pupils should be strictly adhered to. The great stimulus derived from the exhibition of the competitive drawings, and the publication of the names of the successful men should not be forgotten.<sup>35</sup>

Ware's principles and their probable sources may be summarized as follows:

1. Details of a practical nature that can be learned in the office should be postponed until that time. Fundamental considerations relating to such details, however, should be brought to the attention of the student in school. Hence, Ware introduced courses in the principles of working drawings and professional practice.

2. The courses in construction and history of architecture can best be taught by the method of cooperative student investigation and class report. That this principle was suggested to him by the English system is proved by his own words, "The class of construction in the Architectural Association affords an example of this cooperative system which I have observed with the greatest interest and satisfaction."<sup>36</sup> Without doubt the total lack of textbooks in these subjects constituted another determining factor in this decision.

3. Architectural design should be conducted by a competitive method, the students' work being exhibited and judged by a jury composed of members other than the instructors. This conviction was obviously inspired by the example of the *École des Beaux-Arts*.

4. The study of design should be continuous throughout the four-year period as it was throughout the period of study at the *École des Beaux-Arts*. This ideal was not realized at the Massachusetts Institute of Technology, however, because of the connection with engineering and the emphasis upon construction.

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<sup>34</sup>Ware, *loc. cit.*

<sup>35</sup>Ware, *loc. cit.*

<sup>36</sup>Ware, *loc. cit.*

5. Design should be conducted by regularly appointed instructors in the school. At the Kensington School in London, Ware observed that the work was done under a school instructor, instead of in outside ateliers under practicing architects as at the École. Even in Paris the official school ateliers had just been organized. Since it seemed impossible to Ware for busy American architects to view with quite the same idealistic attitude their responsibilities toward the on-coming generation, the French atelier arrangement was not attempted at the Massachusetts Institute of Technology.

6. In the study of design the problems should not be of too practical a nature. It was considered better to stimulate the imagination by studying works of the great masters which were remote from the requirements of every-day life.<sup>37</sup> In this thesis it is not difficult to observe the influence of Richard Morris Hunt and his romantic form of Eclecticism. It should be noted here, however, that in this matter of precedent in design, Ware had a definite conviction. He believed that the first principle of architecture was truthfulness and rationality, which, in its higher phases, became more poetical and more imbued with sentiment and that the great principles of architecture were to be learned from history. It is through study of these principles, which transcend the various periods and are abstract in nature, and not by copying actual precedents of the past, that the student is enabled to solve modern problems.<sup>38</sup> In order to impart this information of the past and yet keep the student free from the rule of authority, Ware proposed to separate the actual study of precedent and design. He would relegate detailed studies of historic styles to the history courses somewhat after the manner of the archaeological *projets* of the École des Beaux-Arts.

7. The study of construction should be emphasized. The great need for more knowledge of scientific methods of construction in the United States was paramount at that time; and in addition, Ware was doubtless influenced by the English educational system, which had always emphasized construction at the expense of the more purely aesthetic side of architecture. The theoretical subjects of mathematics, physics, chemistry, and mechanics were taught by the science faculty of the school; and in this connection, Ware had only to plan for the applied construction and equipment courses.

8. Students in architecture should be given some contact with the closely allied industrial arts. The need for better collaboration in the allied arts in the United States must have been obvious to Ware, but it was far too early in the history of the profession for much to be accomplished toward this ideal.

9. There should be included in the architecture curriculum as much

<sup>37</sup>Emerson, *loc. cit.*

<sup>38</sup>Ware, *loc. cit.*



broad cultural study as a professional course will permit. This contention always remained one of those most strongly supported by Ware. He had received a thorough cultural education at Harvard, and his major interest lay in the realm of genuine scholarship. In attempting this emphasis in a professional school he was not always successful, and doubtless the stress upon broad cultural background often militated against brilliance in the more technical performance of his students. Nevertheless, this principle was a great contribution to early architectural education in the United States.

*The continuation under new leadership.* The Massachusetts Institute of Technology opened in the fall term of 1881-82 with Theodore M. Clark in charge of the department of architecture. He had studied in Richardson's atelier, and had worked in his office for seven years, at the time when Richardson was building Trinity Church at Boston, and several other well-known buildings. Clark then entered practice in Boston, combining his departmental duties with his practice as Ware had done, but he gave sufficient time to the school to maintain the status which it had earned through Ware's untiring efforts.

In spite of limited funds the department grew, and equipment increased. There were fifty-one students in 1885, and in that year more spacious quarters had to be provided for the school.

During his first year as department head, Clark was assisted in the administration of the school by W. P. P. Longfellow, who was Adjunct Professor of Design. However, Létang was, in reality, in charge of the design courses throughout all of these years. Several well-known instructors came to the school during this period, including Ross Turner, who taught the sketching and water color classes, and David Gregg, who conducted a class in pen and ink rendering. C. Howard Walker also began his famous lectures on the history and appreciation of architecture and the related fine arts which he continued until 1933. Clark taught the courses in construction and working drawings, and one of his assistants, Homer, taught the course in history of architecture.

In 1881 a new and unique course was organized under Frank Eugene Kidder, who later became well known through his *Architects' Handbook* and other publications. In this course called the "Architectural Laboratory," the theory of construction was illustrated by practical exercises and experiments in construction, and testing of materials. Since the Massachusetts Institute of Technology had no required shop work, this subject took the place of such a course. It was thought that by actually observing the effects of forces in construction, the student would best acquire that sense of construction, so vital to the architectural designer. This was, doubtless, very sound as an educational theory, but there was not sufficient time for it in the crowded architectural curriculum. As in the case of other schools where the laboratory was attempted, it later became merely a supplementary exercise in the materials course.



The department at the Massachusetts Institute of Technology had always been favored by the loyal interest and support of the Boston Society of Architects and other local men in the profession. Donations were made, scholarships were established, and during this period several of these practicing architects gave lectures at the school. Van Brunt, Ware's former partner, lectured on the theory of architecture, and Arthur Rotch on decorative painting.

The interest manifested by Arthur Rotch should be noted in particular. In 1884, the Rotch family established the Rotch Traveling Scholarship in Architecture. Its administration was controlled by the Boston Society of Architects, and it was limited to men who had worked two years in the office of a Massachusetts architect; so, while it had no direct connection with the Massachusetts Institute of Technology, yet it was a great educational asset to the department. Rotch materially assisted the school upon several occasions, and he was also influential in the establishment of the Department of Architecture at Harvard University.

Some of the important features of Clark's curriculum may be noted. Above the first year, which remained in common with the other engineering courses, design received by far the largest amount of the students' time. The problems were based on the *École des Beaux-Arts* method as it had been adapted to the needs of the school under Ware. Much of the freehand drawing work consisted of sketching and rendering. There was at this time no drawing from life, and modeling had not yet been introduced. History of architecture was offered only in the second year, and Fergusson's textbook was used. Construction was given by means of lectures by Clark, followed by exercises under the direction of his assistants. There were frequent excursions to buildings under construction in the city. The course remained rather complete in cultural subjects as Ware had planned it to be from the beginning.

In 1888 Clark retired to give his full time to his practice, and he was succeeded by Frank W. Chandler, who had been Ware's assistant in the department during the first years of the school's existence. Chandler abandoned his office in Boston where, with his associate, E. C. Cabot, he had successfully practiced for ten years. Having decided, as he said, not to attempt to ride two horses as both of his predecessors had done, he devoted his entire efforts to the school for over twenty years.

Chandler had worked, and also studied, for three years in Ware's office, just after the war. Then for two years he had studied at the *École des Beaux-Arts*. As Emerson has said:

There was no happier event in the life of the department than the appointment of a man so singularly equipped as to personal qualities, broad and varied experience, as well as intimate acquaintance with the traditions of the Institution.<sup>39</sup>

Under Chandler's direction the curriculum was readjusted in minor

<sup>39</sup>Emerson, *loc. cit.*



respects. The two-year special course as a formal curriculum, was abolished. Doubtless, this was due to Clark's influence, for he had also been opposed to it.

During the year 1891-92 the department was moved for the fourth time to new quarters, furnished through the generosity of Arthur Rotch, in the Henry L. Pierce building.

The year of 1890-91 witnessed a great misfortune in the death of Létang. For eighteen years he had been in charge of design, directing instruction since the first beginning of the advanced design classes. He had associated intimately with the students and had fascinated them with his personal interest in their work and his love for good architecture evidenced by his criticism over the drafting board. He was academic in the extreme, and insisted upon beauty of plan, formal symmetry and draftsmanship. It has been said that even a wrong shadow disturbed him. The weak or lazy students were ignored, and to the careless or ignorant one who seemed to have latent ability, came the certain condemnation, "Why can you not learn to understand your work?" As a designer he was far too advanced to be fully appreciated in the United States at that early time, but later his many students carried his influence over the entire continent.

To fill his position, Chandler turned again to the *École des Beaux-Arts*, and Desiré Despradelle was called to the school in 1892 as Rotch Professor of Architecture. This brilliant designer was later to hold a very important place in American architectural education, as will be explained in Chapter III.

As previously noted, a graduate year had been introduced at the Massachusetts Institute of Technology under Ware. After Despradelle came, this advanced course began to attract students of the highest caliber from all parts of the country, and he maintained his leadership among American schools for twenty years.

In 1891, William Henry Lawrence, a graduate of the Massachusetts Institute of Technology, came to the school as instructor in construction. Through his efforts the architectural engineering option was later organized, a department of which he was to be the successful head for nearly half a century. H. W. Gardner was added to the design staff during the following year, and he is still in the active service of the school. A year later, William Felton Brown, another famous Massachusetts Institute of Technology teacher, began his long career as instructor in free-hand drawing. It was then that the first class in drawing from life at the Massachusetts Institute of Technology was given by Brown, which class he taught with untiring energy and enthusiasm up to the time of his resignation in 1932.

It was "Deppy," as Despradelle was called by his associates, and the other members of this outstanding group of instructors, backed by the traditions of this oldest American school, that ushered in during the following period what have been called "the palmy days of Tech."



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*The early curriculum in architecture at the Massachusetts Institute of Technology.* In the catalogue for 1875-76 the following curriculum was listed for the school of architecture:

*First Year*—First half—Algebra finished; general chemistry; structure of the sentence; French; mechanical drawing and elements of descriptive geometry and perspective; freehand drawing; military tactics. Second half—Plane and solid geometry reviewed; plane and spherical trigonometry; general chemistry; qualitative analysis; rudiments of logic; physiology and hygiene; French; mechanical drawing and elements of descriptive geometry and perspective; freehand drawing; military tactics.

*Second Year*—First half—Analytic geometry; descriptive geometry; mechanical drawing; the orders, Greek and Roman architectural history; physics (lectures); French finished—German begun; rhetoric and English literature, or descriptive astronomy; military science. Second half—Calculus; shades and shadows; architectural history and design; physics (lectures); German; English literature or physical geography; military science.

*Third Year*—First half—Theory of Architecture; stereotomy; mechanical drawing; architectural drawing; specifications and working drawings; calculus and applied mechanics; German; physical laboratory; outlines of zoology or history. Second half—Architectural history and design; architectural drawing; specifications and working drawings; applied mechanics; German; physical laboratory; general geology or political economy.

*Fourth Year*—First half—Architectural history and design; architectural ornament and detail; specifications and working drawings; architectural drawing; stability of structures; strength of materials; applied physics; German; philosophy of science. Second half—Architectural history and design; architectural ornament and detail; specifications and working drawings; architectural drawing; structures of stone; structures of wood; structures of metal; building materials.<sup>40</sup>

NOTE: The first year curriculum at the Massachusetts Institute of Technology was common to all the technical courses in the institution.

*The curriculum at the Massachusetts Institute of Technology in 1888, under the administration of Theodore M. Clark.* Under Clark's administration the following four-year curriculum was offered:

*First Year*—English; French or German; modern political history; mathematics; chemistry; mechanical and freehand drawing; military drill.

*Second Year*—English prose; German; political economy; mathematics; physics; materials and common construction; shades and shadows and perspective; drawing and sketching; history of architecture; the orders, elements of architecture and design.

*Third Year*—European history; German; mathematics; physics; acoustics; structural geology; mechanics and strength of materials and statics; iron construction; stereotomy; working drawings; sketching and water color; lectures on the fine arts; design.

*Fourth Year.*—Advanced French; constitutional history; strength of materials; problems in construction; heating and ventilation; specifications and contracts; history of ornament; water color; lectures on the fine arts; advanced design; thesis work.<sup>41</sup>

<sup>40</sup>Annual Catalogue of the Massachusetts Institute of Technology, 1875-76.

<sup>41</sup>Annual Catalogue of the Massachusetts Institute of Technology, 1888.



## CORNELL UNIVERSITY

*Establishment of a department of architecture.* The department of architecture at Cornell University was established in 1871, in connection with the College of Engineering, which was thereafter known as the College of Engineering and Architecture. It was organized largely through the efforts of Andrew Dickson White, the first president of the university, who was deeply interested in architecture. He had collected, "without stint of time, labor or money," what was at that time the best architectural library in the country, which he gave outright to the university. His own words in a report to the Board of Trustees best show his attitude toward the establishment of the new department.

No one who has observed at all closely the condition of our larger towns and villages, especially those remote from the larger centers, can have failed to observe the great lack, not merely of architectural beauty in residence and public buildings, but also waste in expenditure, in convenience and often unhealthiness coming from careless plans or lack of plans. The amount generally lavished on all sorts of excrescences in painted pine, whether Corinthian columns or Gothic pinnacles, is not merely waste, but it is just as certainly a positive offense against taste and comfort. Our people of the villages and towns have felt this and as the country has grown in wealth the services of architects are demanded. Unfortunately, outside of the great metropolitan cities, there are very few architects who are really instructed in their profession. As a rule they want the fundamental characteristics which a true architect should have. The result is that all over the country, churches and houses are going up which in twenty years will be laughed at as pretentiously ugly. To remedy this, there is, so far as I can learn at present, but one architectural school in the United States, that of the Massachusetts Institute of Technology at Boston.

In view of these facts, it seems to me that a College of Architecture is just one of those departments for the combination of liberal and practical study which our charter calls upon us to establish.<sup>42</sup>

Charles Babcock was appointed Professor of Architecture in the fall of 1871, and he remained in charge of the school for twenty-six years. Babcock was a graduate of Union College, classical course, with a Master of Arts degree. He had taken up the study of architecture under Upjohn in New York, and later was associated with the firm as a partner. He remained in practice but five years when he retired to enter the ministry. However, he was soon thereafter called to the teaching profession.

For the first six years, Babcock gave all of his instruction in architecture, and for some time after that, relied only upon the help of student assistants. There were nineteen students enrolled during the first year, and, by 1875, the number had grown to thirty-five, all of whom were then pursuing the four-year course. By 1880 the enrollment was forty-eight. Three women had been graduated from the department.

The endowment was small, and except for the library, the equipment was very meager. Even the library, excellent as it was for the time,

<sup>42</sup>"Architectural Education in the United States—Cornell University," *American Architect*, 24:155-57, October 6, 1888.



furnished little material for direct classroom use. In 1880, the library consisted of one thousand volumes on architecture and related subjects and approximately two thousand prints. It included a collection of architectural drawings and some models showing various forms of construction. Babcock had also gathered a small collection of lantern slides for his history of architecture course.

The degree conferred by Cornell was that of Bachelor of Science in Architecture. In the early curriculum there was little instruction in cultural subjects. Professional work was begun in the freshman year. Drawing, in the present-day conception of the subject, did not exist; and design was given only in the last year, when, in the words of Babcock, it was "practiced with great zest." It was then only of the working drawing type. Solid information on construction and practical training was emphasized. For illustrations Babcock made models and large drawings. In the third year, the student was given an acquaintance with those historic styles of architecture then considered most important to the architect, and he was required carefully to draw up some of the best examples in the manner of working drawings. Opportunity to remain for graduate work was afforded in the early years of the school and this work also was of a practical character in the sense of direct preparation for practice, as opposed to the graduate design course at the Massachusetts Institute of Technology.

In 1880, the struggling department was placed upon a more secure financial foundation. C. Francis Osborne was appointed Assistant Professor of Architecture, and Babcock and Osborne, with their student assistants, gave all of the instruction in architecture.

*Character of instruction at Cornell University.* Babcock and Osborne were practical architects, educated in typical American offices. The work of the school at this period was much influenced by Richardson and his rugged adaptation of Romanesque forms to American practice, which was so popular and so little understood by most practitioners of this time. There was little evidence of the "elegant and monotonous French influence" of the *École*, as it was called. Design as such remained little more than a series of exercises to give a practical acquaintance with the historic styles. Some lectures on the general theory of design were given by Babcock in the third year, and he continued to give the two years of history of architecture. During the later years of this period, these lectures were illustrated by lantern slides. The cultural content of the curriculum was always limited to a year of French and German and a year of rhetoric.

Osborne taught much of the applied construction and construction details, but the theoretical branches of this subject were given by the Civil Engineering Department. In 1894, Clarence A. Martin was called to Cornell. He took charge of the applied construction courses, and raised the standards in this department until it became the strongest in the United States. Martin later became Dean of the College of



Architecture, and he was actively connected with the college until his retirement in 1932.

Babcock's aim was not so much to cultivate the aesthetic appreciation of the students, or to give them a mastery of technique, as it was to give them a preliminary knowledge which he considered indispensable to general American practice.<sup>43</sup> In this policy, he was strongly influenced by Upjohn and by his experience in the office of this great English-trained architect. The school, however, was essentially a product of the time and the environment.

The entire course at Cornell emphasized the production of good practical draftsmen which were so much needed during these years. Toward the end of the century, however, the school was criticized for devoting so much time to details, that might better be learned in the office, and for neglecting the training in design. A complete reorganization came in 1896, when the department was made an independent College of Architecture, Babcock becoming its first dean.

*Radical shift to the methods of the École des Beaux-Arts.* Osborne resigned at this time, later to go to the University of Pennsylvania, as instructor in history of architecture, and John V. Van Pelt took charge of design. Van Pelt was a graduate of the École des Beaux-Arts, with high honors and the French Diplôme. He believed firmly in emphasizing the fine arts phase of architecture, and, largely as a result of his influence, design was made the important subject at Cornell. In fact, the school became one of the strongest adherents of the Beaux-Arts in America.<sup>44</sup> Structural design and the courses in construction details under Martin still remained a strong department in the school and the additional time required was obtained largely by raising the entrance requirements in mathematics, languages, and similar subjects.

The following year, 1897, Babcock retired from active service, as Professor Emeritus, and Alexander Buel Trowbridge, an alumnus of the school, took his place.

Babcock had received but a meager technical training in architecture, but his practical experience in the office of Upjohn, and his cultural background constituted excellent preparation for his position at that time. It was a tremendous task to carry the responsibilities of the struggling school through so many years, and during much of the time with little assistance. Martin, who knew him so well, said in an address upon the presentation of a portrait of Babcock to the University in 1912, a year before he died:

As a teacher Professor Babcock was always earnest, simple, direct, sound as anyone could be in a field allowing so much latitude for differences of opinion, and with a breadth of interest and a sense of humor, without which I doubt if

<sup>43</sup>Clarence A. Martin, "History of College of Architecture at Cornell," *Cornell Architect*, 1:1, December, 1914.

<sup>44</sup>Langford Warren, "Report of the Committee on Education of the American Institute of Architects," *American Architect*, 65:84-85, December 9, 1899.

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he could have survived and remained so young in spirit, for these eighty-odd years. . . . Never moralizing, never criticizing, never even seeming to notice the good or evil in the rest of us, his quiet and sincere life and kindly spirit have been and are still influences for good that no one can measure.<sup>45</sup>

*The early curriculum in architecture at Cornell University.* In the 1872-73 catalogue of the institution, the early curriculum in architecture is given as follows:

*First Year*—Fall term—Algebra; French or German; physiology; rhetoric; drawing. Winter term—Geometry; zoology; French or German; rhetoric; drawing. Spring term—Trigonometry; French or German; ancient history; rhetoric; drawing.

*Second Year*—Fall term—Analytical geometry; French or German; physics; chemistry; drawing. Winter term—Differential calculus; French or German; physics; chemistry; drawing. Spring term—Differential calculus; French or German; botany; physics; lectures on construction and building materials; drawing.

*Third Year*—Fall term—Integral calculus; descriptive geometry; lectures on Egyptian and Greek architecture; drawing. Winter term—Mechanics, descriptive geometry; lectures on Roman architecture; drawing. Spring term—Mechanics; geology; shades and shadows, and perspective; lectures on Byzantine and Romanesque architecture; drawing.

*Fourth Year*—Fall term—Stereotomy; geology and physical geography; lectures on Gothic architecture; drawing; photography. Winter term—Mechanics applied to construction; lectures on Renaissance and Modern architecture; lectures on composition and the art of designing; drawing. Spring term—Lectures on sculpture, painting, glass, mosaic, tiling, decoration, ventilation, warming, acoustics, contracts, specifications, measuring, professional practice, etc.; drawing; exercises in designing.<sup>46</sup>

NOTE: The course of instruction and practice in drawing included the following: Line drawing; shading with India ink; shading with pen and ink; exercises on the blackboard; freehand drawing with pen and pencil; leaf work; use of water colors; and making of plans, elevations, sections, and perspective drawings.

### UNIVERSITY OF ILLINOIS

*Establishment of instruction in architecture.* Instruction in architecture was nominally provided for in the first report of the Committee on Courses of Study at the newly organized Illinois Industrial University in 1867. This was approximately a year after the opening of the school of architecture at the Massachusetts Institute of Technology. A complete professional course, however, was not established until October, 1873, when Nathan Clifford Ricker met the first regular class of five students. Some instruction had been offered in 1870 to some half dozen students by James Bellangee, a graduate in science from the University of Michigan, who had had a brief period of experience in a Chicago architect's office. In 1871, Harald M. Hansen, a Swedish architect who had spent two years in the Bau-Akademie in Berlin, took charge.

<sup>45</sup>Clarence A. Martin, "Professor Charles Babcock." An address given at Cornell University, Ithaca, New York, May 31, 1912, pamphlet, p. 7.

<sup>46</sup>College of Civil Engineering and Architecture Announcement, Cornell University, 1872-73, pp. 69, 70.



He taught a course in architectural drawing and one in design and rendering, but he did little for the development of the department.<sup>47</sup>

Ricker was one of Hansen's students. He had previously acquired some architectural experience in the Chicago office of J. W. Roberts, a pupil of Upjohn. In 1872, when Hansen went to Chicago, Ricker, then an undergraduate student, carried on the work of the small department. Ricker received his architectural degree in March, 1873, the first one to be conferred in America, although it cannot be considered as representing the completion of a regularly organized architectural course, as was the case with the first graduate of the Massachusetts Institute of Technology. He was, at this time, given a permanent instructorship, and, as a final preparation, spent six months abroad studying for a time at the Bau-Akademie and observing the methods of instruction in other European schools.

Upon his return from Europe, he organized a four-year professional course, the third to be established in America. Ricker received the rank of Professor of Architecture in 1875 and remained identified with the department for fifty years. For eleven years he carried on the work without assistance.

Available funds did not allow for much equipment and, although Illinois was for many years the only institution where architecture was taught west of the Alleghenies, the attendance remained small. In 1877 there were thirteen students, one of them being a woman; and in 1888 the enrollment was only forty-four, including the specials in the one-year builders' course. The school had access to a good collection of plaster casts of architectural details which the university had acquired from the Lehr Studios in Berlin. Later this was supplemented by a collection from the Spanish government. Ricker also built up a large collection of excellent models for the construction classes.

*Early beginnings of the Illinois Architecture Library.* In the early days books on architectural subjects were expensive, since most of them had to be imported from foreign countries. Ricker, realizing the handicap of the students' inability to read the texts, translated into English those books most necessary for their use. The typewriter was not then in common use, so he wrote out by hand these translations, on parchment, and had the material blue-printed and copies placed in the corner of the drafting room. This collection which was supplemented from time to time with books as they appeared in English, was the beginning of the great Illinois Architectural Library. As funds became available, more books were added. Some lantern slides and a collection of mounted photographs were also acquired.

*Appointment of Ricker as Dean of the College of Engineering.* In 1878 Robinson, the first Dean of Engineering at Illinois, was transferred

<sup>47</sup>"Architectural Education in the United States—University of Illinois," *American Architect*, 24:95-97, September 1, 1881.

to Ohio State University, and Ricker succeeded him. In addition to his work in the department of architecture, he held the position of Dean of the College of Engineering for twenty-seven years.

Supplementing his regular duties in these early years, Ricker designed and supervised the construction of several of the university buildings. In 1886 J. M. White came to the university and remained in the department for many years. With White as a partner, and the assistance of the students, Ricker took charge of the erection of Library Hall, which was almost entirely a product of the department.

*Generous state appropriations.* Through the efforts of Ricker and the engineering staff, an appropriation of \$150,000 was obtained in 1903. Part of this sum was expended in the establishment of the Engineering Experiment Station, the first and still one of the most important ones to be connected with a university. Successive appropriations for the college followed, with generous allotments being made to the department of architecture. Much of these funds for equipment were expended for the library, and the collection rapidly grew. Ricker chose the books with special reference to the needs of the architecture students, and the library soon became one of the best and most used working libraries in the field. As lantern slides were purchased for the history classes, he changed his class-room procedure from the improvised text-book method to the more informal lecture method. Ricker was very diffident in this matter of giving lectures, but he forced himself to undertake the work that he felt was so important to the school. In the later years he devoted most of his efforts to the history of architecture classes and he is to be grouped with Norton and Warren at Harvard University as a typical romanticist of the history divisions of the early schools of architecture.

*Character of instruction at the University of Illinois.* The early organization of the school was patterned, to a large extent, after the German system through Hansen's influence and Ricker's short course at the Bau-Akademie. The bulletin of 1873 made the following statement:

The specialties of the course are taught upon the same general plan as in the European art schools by a gentleman of much practical experience now studying in Berlin, but expected to return this year.

The development which followed, however, was largely a product of local conditions of the time. The practical turn of mind of the Illinois student was, in Ricker's words, "very intense." To quote him further:

The student of Western birth and education is, I believe, more self-reliant, more independent in his modes of thought, and even more practical than an Eastern college student. He is always asking mentally, "What is the use of this study or this information? Does it lead to any practical result? Will it pay?"<sup>45</sup>

<sup>45</sup>Nathan Clifford Ricker, Report of the Committee on Education. *Proceedings of the Fifteenth Annual Convention of the American Institute of Architects*, November 16-17, 1881, p. 31.



The objectives of the school were summarized in the bulletin of 1874-75, as follows:

1. A thorough knowledge of the principles of construction employed in all classes of buildings.
2. Practice in the preparation of general and detailed drawings—plain, shaded or colored, with specifications, estimates, etc., necessary to form a complete design.
3. Practical knowledge of construction in all forms by shop practice.

The great emphasis upon construction which remained the outstanding characteristic of the Illinois school was not only occasioned by this practical turn of mind of the western pioneers, but also by Ricker's sense of the need for improving the shoddy methods of construction which generally prevailed throughout the Middle West.<sup>49</sup> The university was situated in a rural community where little actual construction could be observed and suitable textbooks on the subject were almost unknown, so the students were given a general training in sound methods of construction in the school shops. These courses were illustrated by drawings and the models made by Ricker, who resorted to the same means as did his contemporary, Babcock, at Cornell. Theory of construction for the architecture students was taught in the engineering department.

Design, which was merely of the working-drawing type, was relegated to the last term of the third year and the entire fourth year, although it could be begun earlier if the student happened to be especially interested in the subject. The unimportant place which design, as such, held in the curriculum and the exceedingly practical nature of the course is well set forth in Ricker's own words in a communication to the American Institute of Architects Convention in 1881:

Correct taste and power of designing form the keystone in the education of the architect. . . . After a student can make a good set of drawings from a sketch or small perspective, a programme of conditions and requirements of a small building is given to him. This is followed by others increasing in difficulty as he acquires power and ending with the most difficult structures an architect is called upon to erect, except public buildings which are reserved for the post graduate course. In studying these problems, sketches at a small scale are made and changed until satisfactory, great attention being paid to the arrangement and convenience of the plan. From these, the student prepares a full set of working drawings neatly colored and shaded. Working drawings similar to those made in architects' offices are preferred to fine drawings, tho as much time as can be spared is given to this branch of the art. Possibly the aesthetical side of the education of the architect has been less fully developed than the practical and scientific side because it has been my aim to send out graduates who were well grounded in the principles of scientific construction and were well fitted for office work as well as this preparation may be made at a school; and then to improve and cultivate their tastes as much as possible in the time.<sup>50</sup>

<sup>49</sup>Notes from the Catalogue of Illinois Industrial University, *American Architect*, 1:417, December 30, 1876.

<sup>50</sup>American Institute of Architects, *Proceedings*, Fifteenth Annual Convention, Washington, D. C., Nov. 16 and 17, 1881, Report of the Committee on Education, pp. 30-42, p. 34.

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A final thesis was required which consisted of a large problem with plans, details, and specifications, "as if it were an actual problem in professional practice."

A study of those historic styles which were then considered applicable to American architecture preceded the design course in the junior year. It was given by means of a series of lectures, the students being required to make fine tracings of good examples during each term. There were two terms of freehand drawing in the second year only.

The degree of Bachelor of Science in Architecture was awarded upon the completion of the four-year course and that of Master of Architecture upon the completion of the graduate year and faculty recommendation.

*The establishment of the option in architectural engineering.* Ricker had long felt that there should be more emphasis placed upon architectural design. He noted that most of his students could be divided into two classes, some that were good in the mathematical studies and others that were more skilled in design, but few were competent in both branches. Therefore, in 1890, the four-year course in architectural engineering was established—the first professional course of this type in the United States.

As soon as Ricker could persuade the university authorities that it was advisable, analytical geometry and calculus were then dropped from the regular architecture course, and a simpler treatment of mechanics and strength of materials was substituted. This made possible an additional year of architectural design.

In the architectural engineering option, advanced construction and building equipment courses were strengthened, preparing the students to solve the ever-novel and difficult structural problems found in every new building at that time. This architectural engineering course has been the most successful in this country. Doubtless, it was the strong emphasis given to engineering at Illinois that made this achievement possible. The two options have always had approximately an equal number of students, and the graduates in engineering have been eminently successful, some of them as engineers entering practice as architects on buildings chiefly structural in character, others as members of large firms of architects, and still others as consulting construction engineers.

The regular architecture courses at Illinois remained, for many years, largely a product of the conditions of the time, as Ricker had developed it. The entire architectural profession in the Middle West had a tendency in those days to solve its problems in an original and practical American manner. It was far from the eastern centers of culture, and the influence of the École des Beaux-Arts was not strong.

*The early curriculum in architecture at the University of Illinois.* An excerpt from the 1874-75 college bulletin, given below, shows the type



of curriculum offered at that time in the University of Illinois College of Architecture:

*First Year*—Fall term—Advanced algebra; projection drawing; English or French; shop practice. Winter term—Advanced geometry; freehand drawing; English or French; shop practice. Spring term—Trigonometry; freehand drawing; English or French; shop practice.

*Second Year*—Fall term—Elements of construction; descriptive geometry; ornament or French. Winter term—Advanced shop practice; analytical geometry; modeling or French. Spring term—Calculus; surveying; modeling.

*Third Year*—Fall term—History of architecture; calculus or composition of ornament; architectural drawing. Winter term—History of architecture; shades and shadows, and perspective; physics. Spring term—History of architecture; architectural designing; physics.

*Fourth Year*—Fall term—Strength of materials; hydraulics; estimating; architectural designing. Winter term—Bridges and trusses; heat and ventilation; specifications, agreements, etc. Spring term—Stone work, aesthetics of architecture (a theory course—lectures and exercises); political economy; thesis; modeling for knowledge of architectural form.<sup>51</sup>

#### SYRACUSE UNIVERSITY

The College of Fine Arts, the first school of the kind in the United States, was established at Syracuse in 1873. George F. Comfort, one of the founders of the Metropolitan Museum in New York, was its founder and first dean. There were then only two departments, painting and architecture, leading respectively to the degrees of Bachelor of Painting and Bachelor of Architecture. The program of studies of the College was intended ultimately to include instruction in all branches of the fine arts. It was a very ambitious program for these modest beginnings, but in time it was partially realized, music being added in 1878 and later a course named *Belles Lettres*. Comfort remained dean of the College of Fine Arts until 1893 and the success of the college was largely due to this faithful pioneer and his progressive planning.

*Establishment of a curriculum in architecture.* The first professor of architecture was H. N. White, who served but one term, 1873-74. He was followed by Archimedes Russell, a local architect, who served until 1881. John Silsbee was also a member of the faculty from 1874 to 1878. Edgar Morse Buell, the first graduate and, incidentally, the first in America to receive the degree of Bachelor of Architecture (all other institutions offering the Bachelor of Science degree), became the first regular head of the department of architecture. Buell was succeeded in 1884 by Arthur Bridgman Clark, who remained in charge until 1893. Clark was later to become head of the art department of Leland Stanford Junior University, which position he held until his resignation in 1932.

In 1893 Albert L. Brockway, an architect of New York City and a former student of the École, became Professor of Architecture and

<sup>51</sup>Catalogue of the Illinois Industrial University, 1874-75.



head of the department. He loaned his library to the school and introduced the Beaux-Arts methods of study in design. This was the beginning of genuine progress in the development of instruction in architecture at Syracuse University.<sup>52</sup>

From the inception of the College of Fine Arts, the equipment had gradually accumulated. In 1898 the library was materially increased and it was then reported to be adequate for the school. The department of architecture was housed in Crouse Hall.

*Character of instruction at Syracuse University.* At first, following the example of most of the early American schools, architectural design was not required until the last year, as will be noted in the early curriculum under "Architectural Drafting," although it could be undertaken in the third year. Mathematics, engineering, and construction, on the other hand, were required throughout the entire four years. Extensive practice was also given in working drawings. However, as the school developed, more attention was given to design, until at the close of the period, a maximum amount of time was allotted to the subject. Also, because of the architecture department's close relation with the other fine arts departments, freehand drawing, drawing from life, water color and modeling were always emphasized. The department at Syracuse was the first to be established in connection with a College of Fine Arts, and this relationship produced the outstanding characteristics of the school.

During the early years of the period the course remained more general than professional in character. For this reason Syracuse, although the fourth school to be established in the United States, did not then exercise a strong influence in architectural education.

In addition to the four-year curriculum leading to the degree of Bachelor of Architecture, there was organized during this period a two-year special course, upon completion of which a certificate was given. The entire school, however, remained comparatively small. There were but eleven students enrolled in the four-year course in 1898.

*Change to the methods of the École des Beaux-Arts.* Albert L. Brockway was succeeded in 1896 by Edwin H. Gaggin, a graduate of the department, who had just returned from the École des Beaux-Arts. Frederick W. Revels, later to become head of the department, was also appointed Instructor in Architecture in that year. He had graduated in architecture at Syracuse the preceding year. Gaggin and Revels carried forward the new policies and methods inaugurated by Brockway throughout the years when the early schools were rapidly turning to the traditions of the Beaux-Arts.

*The early curriculum in architecture at Syracuse University.* The excerpt given below from the 1873-74 catalogue of the Department of

<sup>52</sup>Frederick William Revels, "A Brief History of the Department of Architecture, Syracuse University," *Direct Communication*, 1931, p. 1.



Architecture at Syracuse shows the variety of courses included in the four-year curriculum at that time:

*First Year*—First term—Drawing; drawing from cast; algebra; German. Second term—Architectural drafting; drawing; drawing from cast; algebra; German; ancient history. Third term—Architectural drafting; drawing from nature; geometry; German; ancient history.

*Second Year*—First term—Perspective; drawing from nature; water color; trigonometry; German; physics. Second term—Perspective; water color; German; artistic anatomy; analytical geometry; physics. Third term—Perspective; illumination and lettering; India ink and sepia drawing; calculus; German; physics.

*Third Year*—First term—Architectural drafting; analytical mechanics; aesthetics; chemistry; French; modern history; elocution. Second term—Architectural drafting; strength of materials; history of fine arts; photography; French; modern history; elocution. Third term—Architectural drafting; oil painting; history of fine arts; photography; French; modern history; elocution.

*Fourth Year*—First term—Architectural drafting; history of architecture; history and styles of engraving; essay on art (monthly); geology; political economy; Italian. Second term—Architectural drafting; decorative art; history of sculpture; essay on art (monthly); geology; rhetoric; Italian; political economy. Third term—Architectural drafting; modern architecture; history of painting; art criticism; encyclopedia of art literature; essay on art (monthly); landscape gardening; history of civilization.<sup>53</sup>

#### UNIVERSITY OF MICHIGAN

Under the leadership of W. L. B. Jenney, a prominent architect of Chicago, a long anticipated four-year course in architecture was announced at Michigan in the fall of 1876. The school, however, was discontinued in the spring of 1878.

#### COLUMBIA UNIVERSITY

In 1880 the Trustees of Columbia College, as the university was then called, first considered the advisability of establishing a school of architecture in New York. F. A. Schermerhorn, Jr., was the leading advocate. He pointed out the growing importance of architecture and, with only four poorly endowed schools in existence, three of them being remote from the great centers of architectural interest, he called attention to the splendid opportunity that lay before the college to supply an urgent educational need. The plan was to establish a truly metropolitan school of architecture, well-equipped, and thoroughly professional in character.

Ware, at that time director of the school of architecture at the Massachusetts Institute of Technology, was considered the one best qualified to undertake the task of building up such a school, and, in 1881, he was invited to assume the duties of Professor of Architecture at Columbia University. The invitation was accepted upon the express

<sup>53</sup> Announcement of the College of Fine Arts, Department of Architecture, Syracuse University, 1873-74.



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stipulation that he would be given complete control in the management of the school during the formative years. The Board agreed to these conditions, and for twenty-two years Ware guided the development of this important institution. In line with the Columbia University policy, it was decided that no special students would be accepted, and that the curriculum should be made as nearly ideal as possible. That the school should be made a department of the School of Mines (the Applied Science and Engineering School), however, was a foregone conclusion; and this alliance proved to be a great handicap.<sup>54</sup>

*Establishment of the department of architecture.* With four students enrolled the department opened in the fall of 1881, housed in a gloomy upper room in the ancient building at Forty-ninth Street near Madison Avenue, later called the *Maison de Punk*. Schermerhorn, however, through his interests and generosity, provided Ware with both money and encouragement.<sup>55</sup> In 1883, a new wing was added to the building and a portion of the fourth floor was especially planned for the needs of the department of architecture. Approximately ten thousand dollars, a large amount at that time, was spent under Ware's direction during the period of organization.

The early degree at Columbia University was Bachelor of Science in Architecture.

A. D. F. Hamlin, who was long to be associated with the school and later to become its head, was chosen in 1882 as personal assistant to Ware in the history and ornament courses. Hamlin had completed his general education at Amherst with the Master of Arts degree. Then he had studied architecture at the Massachusetts Institute of Technology under Ware and, later, at the *École des Beaux-Arts*. He was appointed to an instructorship in 1887 and, from that time until the reorganization of the school in 1904, he had charge of the courses in design. Hamlin, with his broad background, idealism and scholarship, fitted well into Ware's scheme and the development of architectural education in the United States had not yet reached the point where the need of ability in design was completely realized.

In 1887, Ware appointed to the faculty Frank Demster Sherman, a member of the first graduating class in architecture at Columbia. Sherman was a man of unique versatility and yet one of quiet modesty in the service of the school. He was an excellent draftsman as well as a brilliant mathematician and the author of several volumes of lyric poems and many short popular works. For years, he taught mathematics, descriptive geometry, shades and shadows, and the elements of architecture. These courses he reorganized and specialized to meet the needs of the

<sup>54</sup>Percy C. Stuart, "Architectural Schools in the United States—Columbia University," *The Architectural Record*, 10:6, July, 1900.

<sup>55</sup>"Architectural Education in the United States—Columbia University," *American Architect*, 24:251-52, December 1, 1888.



architecture student in accordance with the "self containing" policy of the school. His requirements were exceedingly rigorous and exacting, but he vitalized even the calculus as no ordinary teacher could do. Sherman completed the splendid trio, Ware, Hamlin and Sherman, which guided Columbia through those early years of leadership in the building of a broad and scholarly professional education for the architect in the United States.

Charles A. Harriman, who continued until the time of his death in 1931 in the active service of the school, served first as Ware's special assistant. He was formally added to the faculty in 1891, and he then taught the beginning drawing classes. By 1897, when the school moved to its commodious new quarters on Morningside Heights, the faculty had grown to eight in number. The design staff then included W. T. Partridge, a Rotch Scholarship man who had spent some time at Paris, and H. F. Hornbostel of the class of 1891. In 1897, the Columbia school had ninety-six students and was the second largest school of architecture in the United States.

From the beginning, the equipment accumulated rapidly. Hamlin said that a series of fine drawings from the École were the despair, as well as the inspiration, of the early students. In 1888, Ware reported that the equipment was all that could be desired. An interesting item of the time was a number of small casts which were taken home by the students over night and drawn by gas light. The library then contained three hundred volumes of selected books, all of which were at the complete disposal of the students.

*The founding of the Avery Library of Architecture.* In 1890 Samuel P. Avery donated fifty thousand dollars for the purpose of establishing and permanently endowing a reference library of architecture. He also gave to the school four hundred volumes of his own valuable collection on art and architecture.<sup>56</sup> This donation was a memorial to his son, Henry Ogden Avery, an accomplished and influential young New York architect. The younger Avery's personal library of approximately two hundred books was also added to the magnificent gift. The Avery Library became the largest of its kind in the world and the greatest asset of the school.

*Securing freedom from the domination of the School of Mines.* Ware had derived from his experience at Boston a clear conception of what he thought the academic training of an architect should comprise, but, because of the affiliation with engineering in the School of Mines, he was obliged to conform the curriculum to regulations which had little sympathy with the needs of the architect. For example, in 1881, the entire first year had to be devoted to scientific courses having almost no relation to architecture. With great patience and perseverance, he labored, year after year, to eliminate from the curriculum such unrelated

<sup>56</sup>"Architectural Education in the United States—Columbia University," *loc. cit.*

studies; and, with each elimination, more time was given to drawing and design. Gradually the various subjects were severed from engineering, combined and reduced in scope, and reorganized to meet the needs of architecture.

In his struggle, Ware went further at Columbia than any other school had gone in seeking a separate specialized curriculum for architecture. In fact, he doubtless carried the matter too far, for some subjects can best be taught by specialists in their respective fields of learning. In 1891 the mathematics and mechanics courses were combined into a course called architectural engineering which was taught by Sherman. All of the earlier science courses were combined in "specifications and building materials" under Charles P. Warren, another graduate of the school. Similarly other courses were woven into the architectural curriculum, until in 1900, every subject in the curriculum except advanced structural engineering was under the direct control of the department of architecture.

By 1890 the general class work had been condensed and pushed back into the first three years, leaving the fourth year free for purely professional study. A construction option was created in the fourth year which made it possible for students to elect, for their advanced study, either drawing, design, or construction. At this time, also, the graduate year was first offered. This was similar to the fourth year, the students either continuing their advanced studies or completing the option which they had not pursued in the undergraduate program.

It was in 1897 that architecture was separated from applied science, except for its administrative affiliation; and in 1902, as a final outcome of the heroic efforts of Ware and Hamlin, it was made an independent school administered by its own staff.

*Character of instruction at Columbia University.* The Columbia University department was the most influential school of architecture in the United States throughout the eighteen-eighties and early nineties, and its character should be especially noted. With his long experience at the Massachusetts Institute of Technology, Ware's philosophy of education had matured. The program at Columbia also presented a very different field of opportunity, and several new policies are to be observed in the development of the new school.

The study of design was limited to the advanced years of the curriculum and the approach was academic rather than inspirational. While Ware was cognizant of the direct heritage from the *École des Beaux-Arts*, he believed that the French system should be adjusted to American conditions. Also it should be noted that doubtless much of the *Beaux-Arts* tendency at the Massachusetts Institute of Technology had been due to the influence of Létang. All competitive features were discouraged at Columbia. Ware based his conclusions regarding the *Beaux-Arts* system upon the following points:



1. Patrons under government patronage with leisure time and great interest in education were lacking in this country. The great designers were busy making a living.

2. The advanced students, or "anciens," instead of remaining long in school under the lure of the Rome Prize, and, after that, the patronage from the government, as was the case at the École, were anxious to get out into practice as soon as possible.

3. The emphasis upon competitive honors which formed the great incentive to French students should be distasteful to Americans, and, in the absence of an atelier system, was liable to degenerate into individual jealousy and discontent instead of group cooperation.

4. Ware cared little for brilliant and showy drawings, but expected, as Hamlin put it, "Evidence of serious study, intelligent thought, sound knowledge, and refined taste."<sup>57</sup>

For a time Ware's methods in design seemed to prove very successful. For instance, one of the graduating seniors said of the non-competitive feature, at the close of a final problem:

The most satisfactory thing about them was that we (the senior class) knew that they were not going to be judged. We felt free to do what we thought best without considering what a jury would think.<sup>58</sup>

Two factors, however, later militated against Ware's ideal. In the first place, neither Ware nor Hamlin were brilliant designers; and secondly, the elimination of the most effective elements of the competitive system and the substitution of the dry, scholarly approach retarded the achievement of the students in advanced design. As able and inspiring designers from the French school became more numerous and the other schools shifted to the Beaux-Arts plan, comparison of the finished product became increasingly unfavorable to Columbia. Dissatisfaction grew and after 1900 the school awaited only Ware's retirement to swing to the opposite extreme.

Ware insisted upon some exercise of originality in design and one of his interesting innovations, which he thought provided a step in the right direction, was drawing from description and memory. From a description of some historic example, or from an imagined composition, the student would make a drawing using his knowledge of the classic proportions to perfect it. This might be the design for a capital, a doorway, or an entire facade.

The design schedule provided for both long *projets* and short sketch problems as in the École des Beaux-Arts, and, at the close of each problem, there was a careful and detailed criticism. These criticisms took the form of a series of lectures on the theory of architecture, composition, and planning. A comprehensive and carefully studied problem in the nature of a thesis was given at the end of the senior year.

As the courses in construction and engineering were taken over by the department of architecture, they were condensed and limited to only

<sup>57</sup>A. D. F. Hamlin, "The School of Architecture," Reprinted from *Columbia University Quarterly*, June, 1906, p. 213.

<sup>58</sup>*Loc. cit.*

those general principles which the architect needs to understand in order to design with a sense of logical structure, and to work sympathetically with the engineer. Ware always felt that there should be a shop course, but, because of lack of building space, it never materialized.

The history courses came to have unusual prominence largely because of the excellent facilities available for such study in the Avery Library. From three to five hours a week were devoted to lectures on history of architecture and history of ornament each year, and when Ware noticed that the library was still not being used effectively by the students, he interrupted the advanced design classes during the spring term of each year with a six to eight weeks' period of research. During this time, the library was ransacked, the students making sketches and tracings from all periods. During the senior year, every evening was devoted to library research and the writing of papers on these historical studies. This was called "advanced architectural history," and the papers were read before the class every Friday morning.

Good draftsmanship was insisted upon and, in the drawing courses, pencil was the important medium since it was the characteristic medium of the architect. Ware believed in the value of tracing, not only because it gave the student a collection of valuable records at a time when they were scarce, but because of the sureness of hand which it developed. Some practice in brushwork was given, with a preference for monochrome in water color. The students drew from casts, from actual objects, and from photographs.

The fundamental principles underlying the business side of practice were stressed in the advanced years. There was instruction in taking off quantities and estimating costs, and there were lectures on professional relations and legal obligations. It was thought that many such principles could be better understood by the student before he was thrown into too close contact with the harrowing details of the professional office.

It was in the cultural content of the curriculum that Columbia differed most widely from the schools of this early period. Ware always believed that the architect should be a man of culture, an artist whose outlook upon the world was that of the liberally educated man rather than that of the narrow specialist. He did not decry or belittle scientific training but always insisted that the office was the proper school for a large part of the technical discipline required by the architect. The function of the course of study in the university was, therefore, to fit the future architect not so much for the immediate requirements of his office-employer on graduation, as for the larger requirements of the architect's own practice five or ten years later.<sup>50</sup> The technical work being condensed, more time was available for cultural content than in most schools. Instead of allotting this time to design, he devoted it to

<sup>50</sup>Hamlin, *loc. cit.*



the requirements of a liberal education. In the French classes, the students read French books on architecture and the fine arts and made reports. In English, weekly papers were written during the entire second and third years; this work prepared the students for a series of literary studies which were carried on during the evenings throughout the fourth year, as previously explained. This emphasis upon general culture as an important element in the training of an architect doubtless contributed to the comparative weakness in design at Columbia. Throughout all of these efforts, it is not difficult to see that the dominating force was the intellectual personality of Ware.

As previously pointed out, it was Ware's ambition to establish in New York City a school of very high professional character. With qualifications such as he possessed and the exceptional facilities offered at Columbia College, this would seem to have been entirely possible. However, even after severing the hampering affiliations with the School of Mines and fully developing the professional fourth year, the immature character of the student body seriously limited the attainment of this ideal. In an attempt partially to overcome the handicap, special students were admitted upon examination after 1890. This privilege was limited to mature men of office experience, or to college graduates who desired advanced instruction, and there was no recognition of accomplishment for special work.

In creating the first professional school of architecture in the United States, Ware had wisely turned to Europe for guidance, especially to the École des Beaux-Arts. With this continued experience in the development of architectural education as an adjustment of the Beaux-Arts ideal, on the one hand to the needs of the local profession, and on the other to the methods of the American university, he became the leading exponent of that truly indigenous type of American training which was the logical culmination of the Early Period. In the light of present-day thought, it is surprising to note the advanced character of many of his educational principles and methods. Ware's prestige, coupled with the advantages of location and excellent equipment, should have led the way to a highly successful system of education. This country, however, was to pass through a period of entirely different ideals; and the early beginnings in education, as well as in the profession of architecture, were to be superseded by Neo-Classicism and Beaux-Arts Eclecticism.

*The early curriculum in architecture at Columbia University.* From the Columbia College bulletin for 1883 the following excerpt on the four-year curriculum was taken:

FIRST YEAR

(Common to all courses in the School of Mines)

*First Semester*—Mathematics (algebra and geometry), physics, chemistry, French, German, drawing.

*Second Semester*—Mathematics (trigonometry), physics, chemistry, French, German, drawing.

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### SECOND YEAR

*First Semester*—Mathematics (analytical geometry), descriptive geometry, chemistry, elements of architecture, history of architecture, French, German, drawing.

*Second Semester*—Mathematics (calculus), shades and shadows, perspective, stereotomy, elements of architecture, history of architecture, French, German, drawing.

### THIRD YEAR

(Same for both semesters)

Mechanics and strength of materials, applied chemistry, geology, history of architecture, history of ornament, decorative arts, specifications and working drawings, architectural design, modeling, drawing.

### FOURTH YEAR

(Same for both semesters)

Sanitary engineering, sewerage, geology of materials, graphic statics, bookkeeping, business relations, estimating, history of architecture, history of painting and sculpture, theory of architecture, literature (themes, reports, etc.), architectural design.<sup>60</sup>

The general description of the drawing courses is given as follows: First year; use of instruments, lettering and projections. Second year; tracing from historic examples, drawing ornament and details from casts, freehand perspective, etc. Third year; freehand drawing from casts (ornament and the human figure) and water color. The nude life class was not permitted by the Columbia administration.

Architectural history began with the Greek and Roman periods in the second year, followed by the medieval period in the third year, and the Renaissance and Modern architecture in the fourth year.

The decorative arts course consisted of lectures, sketching, and excursions of inspection in the fields of the closely allied arts.

Design, which began in the third year, consisted of the so-called "designing from dictation" and problems in restoring historic examples. Actual projects were given only in the fourth year.

### UNIVERSITY OF PENNSYLVANIA

*Establishment of the department of architecture.* At the University of Pennsylvania some brief general courses in architecture had been offered since 1874, and a complete professional course had long been contemplated. The leading architects of Philadelphia felt that a local school should be created, as had been done in New York and Boston, and, very largely through their efforts, the department opened in the fall of 1890. Theophilus P. Chandler, Jr., was the leader in this movement, and for the first year he gave a portion of his time as director of the school. In appreciation of his work, the University conferred upon him the honorary degree of Doctor of Fine Arts, in 1921.

Most of these architects had studied at the École des Beaux-Arts, and

<sup>60</sup>Bulletin of Columbia College, 1883.



they patterned the methods of their school, as far as was possible, after those of the École. The plan was lauded as most auspicious by the profession, but it was based upon the voluntary efforts of the architects and was rather visionary. During the year the first chair of architecture was created by the University, and Warren Powers Laird was called to take charge of the organization of the new department.<sup>61</sup> Laird had studied architecture at Cornell University, had traveled in Europe, and had acquired valuable experience in practice. This preparation, coupled with his magnetic personality and high professional ideals, equipped him well for the position of leadership which he held in the field of architectural education for forty years. His efforts and those of the splendid group of teachers that he gathered about him were responsible for the school's success.

*Distinguishing features of the early school.* From the beginning, Pennsylvania placed great emphasis upon design and the school was broadly professional in character. To quote from F. R. Bacon in "The Study of Architecture at the University of Pennsylvania," published in 1916:

Since the organization of the course in architecture at the University of Pennsylvania, twenty-five years ago, it has been the endeavor of those in charge to steer a straight course between the rocks of commercialism on the one hand, and those of pedantic dilettantism on the other. While giving due attention to the so-called humanities, to the history and criticism of the fine arts, and developing a good command of the English language, the Pennsylvania architect finds his fullest expression in design drawings rather than in literary theses. It is assumed that every student matriculating in the school desires the best possible preparation for a professional career, that may be gained in four college years. The training is intended not to duplicate office work, but to be its complement; the curriculum, therefore, excludes all that may be learned more advantageously in the office, in order that it may supply those elements that the average draftsman rarely, if ever, acquires in his strenuous daily routine.

The early bulletin claimed that the school educated high-grade architects, not draftsmen, but the training was such that the students were better draftsmen and assistants for having had it.<sup>62</sup>

Another outstanding characteristic of instruction at the University of Pennsylvania, that should be noted at the outset, was the emphasis placed upon the various branches of freehand drawing. They were planned not to be studied as mere incidentals to design, but as subjects with important educational objectives *per se*, in the broad development of the architectural student. The instructors in these allied subjects were chosen for their recognized abilities in their respective lines. In this manner there was created about the school a general fine arts atmosphere.

As a proof of the importance given to design and freehand drawing in the curriculum, the following list shows the comparative number of hours devoted to the principal subject matter groups, for the junior year

<sup>61</sup>Percy C. Stuart, "Architectural Schools in the United States—University of Pennsylvania," *Architectural Record*, 10:315, January, 1901.

<sup>62</sup>Francis R. Bacon, "The Study of Architecture at the University of Pennsylvania," *American Architect*, 109:233-40, April 12, 1916.

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in 1900-1901. The grouping for other years was similar in this respect, and the student began this professional work in the freshman year:

|  |                        |
|--|------------------------|
| Engineering and construction.....            | 5 hours                |
| Architectural history .....                  | 3 hours                |
| Freehand drawing, including water color..... | 9 hours                |
| Design .....                                 | 15 hours <sup>63</sup> |

### *Important additions to the faculty and rapid growth of the school.*

One of the first associates with Laird in the new school was Charles Dana, the well-known water-colorist. Then, in 1893, Herbert Edward Everett, who retired in 1931, and George Walter Dawson, who was in the service of the school until his death in 1938, were added to the faculty. Everett took charge of the history of architecture and ornament classes, while Dawson, then a recent graduate from the Normal Art School of Boston, became instructor in the drawing department, a position in which he was later to receive great recognition. Edgar V. Seeler, a Philadelphia architect, who had recently completed his studies at the École, was appointed Assistant Professor in charge of design at this time. By 1894, there were ten instructors on the faculty. On account of the pressure of his successful practice, Seeler resigned in 1898, and was succeeded by Frank Edson Perkins, a graduate of the École des Beaux-Arts, and holder of the Diplôme. Lewis F. Pilcher, a Columbia man, came to the University in 1895 to teach the history of architecture. In 1898, Thomas Nolan joined the faculty, completing the list of well-known teachers of this early period. He was also a Columbia graduate in architecture, having previously taken his degree at the University of Rochester. Nolan had traveled extensively in Europe, had studied at the École, and had practiced for several years. He took charge of architectural construction, and was head of this department until the time of his death in 1926. Nolan was well-known through the *Kidder-Nolan Architects' Handbook* and many other publications of his works, written in the interest of better architectural construction.

The department was connected with the Town Scientific School, but it was much more independent of the division of engineering than most of the early schools. It was housed until 1916 in the top floor of College Hall, the main building of the University. Facilities were always inadequate, yet, through the leadership of Laird, the growth of the school was phenomenal. Four years after its organization, there were seventy students enrolled, including the specials. During the first year, the nucleus of a working library was provided by the Philadelphia architects, and this was gradually built up until, in 1900, it included six hundred volumes of good reference works, and ten thousand plates of illustrative material on architecture.

<sup>63</sup>Stuart, *op. cit.*, p. 317.



*The special course.* The school was organized as a regular four-year course, leading to the degree of Bachelor of Science in Architecture, but there was soon added the two-year special course which has been an important feature at Pennsylvania. The standards were always kept very high in this short course, and it was limited strictly to men who had had experience as draftsmen, and were able to make rapid progress in this condensed curriculum. The strong emphasis placed upon design and drawing at Pennsylvania unquestionably had much to do with the success of this course. The work of the special students in professional subjects was as good as that of the regular ones, and many of the most able students of the school have been specials—clever draftsmen from all parts of the country who were attracted by the opportunity to study under excellent instructors in design without having to devote four years to a regular college course.<sup>64</sup>

*Character of instruction at the University of Pennsylvania.* Pennsylvania became one of the most influential schools of the early years of the twentieth century, and the character of its important courses should be noted.

Instruction in design was begun in the freshman year, but the curriculum for the year was crowded, and the elements of architecture consisted then of little more than lectures and dictations with simple exercises. The orders came in the second year until, in 1897, this course and elementary design were allocated to the freshman year. The Beaux-Arts method, adapted to the American school system, was used as it had been at the Massachusetts Institute of Technology. The forms of classic architecture were the medium of expression, exclusively in the elementary classes, and generally in the advanced work. It was believed that the ability of the architect depended upon resources which were gained through the analytical study of these forms and the discernment of their subtle distinctions. In the advanced years, however, one of the outstanding characteristics of instruction at the University of Pennsylvania was the encouragement given the student toward original thinking in design, and the use of forms of expression other than the classic. Percy C. Stuart, an alumnus of the school, has said:

Like an infant learning to talk, his first forms of expression will be those that have dinned into his ears the most incessantly, and his progress in fluency and resourcefulness will be directly as the cultivation of his faculties of observation. . . .

In the advanced years he is encouraged to amplify and develop the original scope of a problem, and, above all, to make his design his own from the preliminary sketch, straight thru the finals. He soon learns the fallacy of the idea that the short road to success in the study of architectural design lies in the ability to make a successful "swipe" from the plate or photograph in the library. At the same time, the importance of the library for historical study and research is continually impressed upon the student throughout the course.\*

<sup>64</sup>Blackall, *op. cit.*, p. 8.

\*Stuart, *op. cit.*, p. 324.

An interesting characteristic of the design courses was the spirit of the student body in the Pennsylvania drafting room. Here the students worked together with the utmost freedom. They criticized each other's work and there was an atmosphere of congenial competition which was, probably, excelled only by the Paris ateliers. The presence of able instructors and brilliant advanced students, combined with the importance placed upon design, established and fostered this tradition. It was impossible to enter the drafting room without sensing this spirit, which is so important to a school of architecture.

Drawing and water color, as was pointed out above, were given for their value as independent branches of the equipment of the architectural draftsman, but, of course, there was an immediate value in this work for design. In this respect Stuart has said:

Freehand drawing induces the habit of photographing upon the eye's retina, so to speak, all forms that may be of value to the student's mental storehouse of architectural knowledge.<sup>66</sup>

In training the faculties of perception of architectural form and character, in developing facility and accuracy in sketching, designing ornament and drawing large scale details, and in developing the student's ability in presentation, these courses became of greatest importance. The student began with rather tight, carefully studied and usually labored exercises in both drawing and water color. Later on, as he grew proficient in the medium, he was encouraged to attempt a more free and direct expression, and to choose his own subjects from the museum or about the campus. This work began in the first year, and was continued throughout the course, terminating in the nude life class in the fourth year. This life class was not included, however, in the early curriculum as shown below, for it was not offered until after Everett came to the school.

Everett also organized the historic ornament course, which became one of the most interesting subjects in the school.<sup>67</sup> Here, as will be mentioned later, he not only gave the students a practical working knowledge of ornamental forms in the principal historic periods, but he taught them design and color.

Modeling was given during this period, but it was later discontinued because of the over-crowded curriculum, and not resumed until after the recent creation of the five-year course.

The construction courses under Nolan were thoroughly practical, but condensed and adapted to the needs of students of architecture. Nolan wisely attempted to give immediate application of these principles to the current design problems. Shop work was required of the freshmen during the early years of the school.

The general liberal arts courses were offered, as far as possible, in the lower years at Pennsylvania, so that the last years were free for

<sup>66</sup>Stuart, *loc. cit.*

<sup>67</sup>*Ibid.*, p. 327.



purely professional subjects and the advanced design, for which the school became so famous.

*The early curriculum in architecture at the University of Pennsylvania.* The following list of courses offered in 1891-92 was taken from the University of Pennsylvania bulletin for that year:

*First Year*—English; French; hygiene; chemistry; mathematics (algebra, geometry, trigonometry); instrumental drawing; freehand drawing; shop (wood construction); history of architecture; elements of architecture and design.

*Second Year*—English; French; hygiene; chemistry; physics; mathematics (analytical geometry); mechanical drawing and descriptive geometry; freehand drawing; the orders and design.

*Third Year*—English; physics; surveying; geology of materials; mechanics of materials; graphic statics; lectures on building construction; freehand drawing; sketching and pen and pencil rendering; water color; modeling (one term only); architectural history and historic ornament; design (including some measured drawings, and lectures on the theory of design).

*Fourth Year*—Economics and social science; structural design; lectures on building construction and specifications; sanitary science and acoustics; lectures on professional practice (one term); water color; history of architecture; historic ornament; advanced design.<sup>68</sup>

#### GEORGE WASHINGTON UNIVERSITY

*Establishment of the department of architecture.* Instruction in architecture was begun in 1884 at George Washington University (then Columbian University), under the direction of the Corcoran Scientific School. William M. Poindexter was Professor of Architecture and Harry King, L.L.B., was Professor of Drawing. The work in architecture was offered each year under these professors until 1892 when a department of architecture was organized in the Corcoran Scientific School. Poindexter, however, resigned in that year. In 1893 a complete professional four-year curriculum in architecture was prescribed, and Louis Amatois was made head of the department.<sup>69</sup>

The school was then known as the Department of Fine Arts as Applied to Architecture. In 1894 the School of Fine Arts was created with architecture as one of its departments. In that year Charles E. Barry was head of the architecture department, Amatois continuing as head of the Department of Fine Arts as Applied to Architecture. The staff then included, in addition to King, three other instructors. Graduate work was first announced in that year.

In 1895 Barry resigned, and J. C. Hornblower was appointed as head of the architecture department. King also resigned in the following year and Theodore Friebus, Jr., took his place on the staff. Theodore F. Laist came to the department in 1900 and was appointed its head in 1901, Hornblower becoming lecturer in architectural history. Eight

<sup>68</sup>Bulletin of the University of Pennsylvania, 1891-92.

<sup>69</sup>Norris I. Crandall, *History of the Department of Architecture*, unpublished, typed Pamphlet of George Washington University, Division of Fine Arts, p. 1.

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members of the staff were listed as giving some instruction in architecture. In addition there were special lecturers from the architects' offices of Washington, D. C.

The professional school remained very small throughout these years. In fact, the Committee on Education of the American Institute of Architects did not include it in their reports upon the schools of architecture until 1904. As nearly as can be ascertained, there were only eighteen students in 1898. In 1904 the enrollment was twenty-nine, and the following year, due to a reorganization of the department, it was thirty-seven, twenty-two of the students being specials.

*Character of instruction at George Washington University.* No architectural design was given in the first year; however, it was offered during the three following years, paralleling three years of architectural and ornamental drawing in the Department of Fine Arts as Applied to Architecture. This work was "so arranged as to illustrate architectural ornamentation and decoration discussed in the lectures on history of architecture and to furnish skill and practice in the treatment of the assigned problems in architectural design."<sup>70</sup> Also paralleling design there were three years of applied construction and three years of history of architecture. The applied construction subjects were taught by the architecture staff, but theory of construction was given in connection with the engineering division. Freehand drawing as such was offered only in the first year, but practice in this medium was included in the architectural and ornamental drawing courses. Academic subjects were distributed throughout the curriculum. A thesis, which consisted of an original design, was required for graduation.

The requirements of the graduate year included a study of the classical styles, interior architecture and advanced construction, with a thesis embodying a complete study of a structure of elaborate and ornamental character.

The baccalaureate degree at George Washington University was Bachelor of Science in Architecture. The graduate degree was Master of Science in Architecture.

There was then no direct connection with engineering, the tendency from the first being to affiliate architecture with the other fine arts divisions of the institution. It was the second of the early schools to show this tendency, the first one being Syracuse University. In the general character of the professional subjects, particularly the major subject of design, the school at George Washington University during the Early Period was merely a product of local conditions. It represented an attempt to create within an American university a school which would provide the training needed as preparation for a contemporary architect's office.

<sup>70</sup>Catalogue of George Washington University, Departments of Instruction, Washington, D. C., 1898.



*The curriculum in architecture at George Washington University.*  
The curriculum in architecture in 1898 was as follows:

### *First Year*

- |  |   |
|--|---|
| (3) Chemistry 1<br>General chemistry                   | (1) Fine Arts 1<br>Freehand drawing       |
| (2) Drawing 1<br>Mechanical and geometrical<br>drawing | (2) Romance languages 1<br>French         |
| (3) English 1, 4<br>Rhetoric; English literature       | (5) Mathematics 1, 2<br>Algebra; geometry |

### *Second Year*

- |   |  |
|---|--|
| (4) Applied mathematics<br>Descriptive geometry   | (2) German 1   |
| (14) Architecture 1, 4, 5, 10<br>History of architecture; ar-<br>chitectural drawing and de-<br>sign; building construction | (3) Mathematics 3, 4<br>Trigonometry; analytic<br>geometry |
| (6) Fine Arts 3<br>Drawing, etc.  | (2) Mineralogy<br>Descriptive mineralogy                   |
|   | (3) Physics 1<br>General physics                           |

### *Third Year*

- |   |                                     |
|---|-------------------------------------|
| (4) Applied mathematics 3, 6<br>Mechanics; graphic statics<br>(one term)  | (6) Fine Arts 4<br>Drawing, etc.    |
| (16) Architecture 2, 6, 11, 12<br>History of architecture; ar-<br>chitectural design; building<br>materials; specifications | (2) Geology 1<br>Systematic geology |
|   | (2) German 2                        |
|   | (2) Mathematics 5<br>Calculus       |

### *Fourth Year*

- |  |  |
|--|--|
| (2) Applied mathematics 5<br>Strength of materials   | (2) Astronomy 1<br>General astronomy   |
| (15) Architecture 3, 7, 8, 9, 13<br>History of architecture; ar-<br>chitectural design; building<br>materials; sanitary science;<br>thesis | (2) Economics 1<br>Business law        |
|  | (6) Fine Arts 5<br>Drawing, etc.       |
|  | (2) Philosophy 1<br>Logic <sup>1</sup> |

NOTE: Bracketed numbers refer to classroom hours.

## ARMOUR INSTITUTE OF TECHNOLOGY

A short course in architecture was organized at the Art Institute of Chicago in 1889, under the leadership of two Chicago architects, Louis J. Millet, a former École student and a member of the firm of Healy and Millet, interior decorators, and William A. Otis. Several other well-known architects, including Jenney, Root, Burnham and Pond, were interested in the movement, and gave criticisms in the design classes and lectures. The course was successful from the standpoint of design, but it was limited in its scope.

<sup>1</sup>Catalogue of George Washington University, The Corcoran Scientific School, Washington, D. C., 1898.

*Establishment of the professional school of architecture.* In 1895 a union was effected between the Art Institute and the Armour Institute of Technology, for the purpose of developing this course into a complete four-year professional school. Armour Institute added the science and construction and the general courses, while the drawing and design divisions remained at the Art Institute. The school was listed as a department of the College of Engineering at Armour Institute; but it was called the Chicago School of Architecture. Louis J. Millet became the first director.<sup>72</sup>

There was a fairly good working library at the Art Institute, later called the Daniel H. Burnham Memorial Library. At that time it contained two hundred books and one thousand mounted photographs on architecture. The school also possessed the Trocadero Collection, an excellent number of casts of historic architectural details which the French Government had sent to the Chicago Exposition.

The degree granted by the Armour Institute was that of Bachelor of Science in Architecture.

*Character of instruction at the Armour Institute of Technology.* The Chicago school was the third of the early institutions to originate in connection with allied fine arts courses. The design classes, in association with the classes of the Art Institute and the great galleries, developed a fine-arts atmosphere. As much time as possible was spent in drawing and design. This was supplemented by the excellent facilities of the Armour Institute in the engineering branches. The school also continued to enjoy the leadership and patronage of some of the greatest architects of the time who were practicing in Chicago. Because of its late date of establishment, however, the greatest influence of this Mid-Western school was to come in the early years of the twentieth century.

*The early curriculum in architecture at the Armour Institute of Technology.* The statement of courses given below is taken from the 1895-96 bulletin of the Armour Institute of Technology. The school year at that time was divided into three terms.

*First Year*—Mathematics; college algebra; trigonometry; analytical geometry; elementary calculus; projections; shades and shadows; descriptive geometry; freehand drawing; rendering; elements of architecture and design from description; history of ancient architecture (1 term); modeling (1 term).

*Second Year*—Calculus; history of 19th century; English; history of architecture; drawing from the antique; sketching (pen and ink or water color in the spring term); rendering; general construction; graphic statics; sanitary engineering (1 term); architectural design; composition of ornament (1 term).

*Third Year*—Mechanics and physical measurements; strength of materials; composition of ornament (1 term); pen and ink or water color; theory of architecture and architectural design; English; advanced architectural

<sup>72</sup>Bulletin Armour Institute of Technology, 1895.



history; history of ornament; electives in mechanical and electrical engineering.

*Fourth Year*—Architectural engineering; advanced architectural history; advanced architectural design; interior decoration; architectural jurisprudence, specifications and estimates; electives in mechanical engineering; one term courses including logic, political economy, literature, psychology, business law; thesis in architecture; thesis in engineering.<sup>73</sup>

#### HARVARD UNIVERSITY

The background for a school of architecture had been established at Harvard University by the popular lecture courses in the fine arts given by Charles Eliot Norton, but no professional courses were introduced until after H. Langford Warren joined the faculty of the university. Warren had received his general education in Germany and England, and had worked for an English architect in Manchester. He came to Boston when his family returned to America in 1876. Being deeply interested in architecture, he came at once under the influence of Norton, and was an ardent follower of Norton's teachings throughout his life. For two years Warren attended the Massachusetts Institute of Technology under Ware and Létang and then worked for four years in Richardson's office. After further travel and study in Europe, he opened his Boston office, where he was practicing when he was called to Harvard as Instructor in Architecture in 1893. He continued to maintain a contact with the active profession although to a less extent as his interest in education increased.

*Establishment of a professional school of architecture.* During his first year at Harvard, Warren gave lectures on the history of Greek and Roman architecture which were well received; and in the following year the professional course was organized under his leadership. It was not, however, until the fall of 1895 that the complete four-year course was established.<sup>74</sup> It was an undergraduate department of the Lawrence Scientific School, and the courses in construction were given at first by the engineering faculty.

Warren was appointed Nelson Robinson, Jr., Professor of Architecture, in 1903, and later, when the department was established as an independent school, he became dean of the faculty. In the design classes, Warren was assisted, at first, by George F. Newton, and later also by J. W. Bemis, a Harvard alumnus.

There were six regular instructors on the faculty in 1897, not including those in the allied departments of fine arts and engineering, who also gave instruction to the students of architecture. The program of studies formed a very complete professional curriculum.

*Increase in equipment.* The physical equipment was very meager

<sup>73</sup>General bulletin of the Armour Institute of Technology, 1895-96.

<sup>74</sup>Editorial, *American Architect*, 44:105, June 9, 1894.

until in 1898, through the efforts of President Eliot, the Nelson Robinson Memorial gift of \$200,000 was presented to the school. Nelson Robinson, Jr., a member of the class of 1900, was the only son of Nelson Robinson of New York, and when he died his father determined to create a memorial to him at Harvard. Since the son had been interested in both architecture and landscape architecture, it was natural that this memorial should take the form of a gift for the advancement of architecture and the then proposed allied program in landscape architecture. Part of the donation was used to erect the new building, and the remainder was retained as an endowment. McKim, Mead and White were the architects chosen, and in 1901 Robinson Hall was completed. It was well planned, well equipped, and a beautiful building—the first and for many years the only one in America to be erected exclusively for the use of a school of architecture and closely related subjects.

Robinson Hall was located near the Fogg Museum of Fine Arts, so that the museum collection of casts, drawings and nearly thirty thousand photographs on the subject of architecture and the fine arts were available to the school. This was an important factor in strengthening the emphasis at Harvard upon the history and appreciation of the fine arts.

*Character of instruction at Harvard University.* Although long connected with the scientific school, the architectural work at Harvard University was not influenced by engineering, and the accomplishment of the students gave evidence of a finer artistic sense than any other school of the period. Scholarship and good taste in design were emphasized from the first, and the courses were relatively free from the influence of the *École des Beaux-Arts*.<sup>75</sup>

There was a tendency for the school to draw inspiration from the fine old culture and artistic sense of Boston, and to make of its architecture an art expression of the community. About 1898, it was this emphasis that led to the scheme of calling a committee of practicing architects as patron critics in the advanced design classes. Four architects were appointed each year, and each member took general charge of one major problem, being assisted by the regular instructors of the department. This idea was probably suggested by the atelier system of the *École*; at least, it was in line with the thought of the time—that design should be taught only by well-qualified practitioners. In this way the school kept in close touch with the ideals of the community, and, through the interest and often sacrifice of some of the architects, the scheme proved successful.

As much time as possible was given in the curriculum to drawing and design, and this was supplemented by excellent courses in aesthetics given by the fine arts faculty of the university.

Dr. Denman W. Ross of the Harvard College Department of Fine

<sup>75</sup>Ralph A. Cram, "A Case Against the *École des Beaux-Arts*," *American Architect*, 54:107-8, December 26, 1896.



Arts gave his famous course in theory of design with its brilliant analysis of the principles of decorative design. The general objective was the development of a sense of beauty and a power of imagination. Quite different from this were the lectures by Santayana, on the philosophy of art and the various aesthetic theories. Modeling was included in the curriculum from the first, and in 1897 a course in modeling from architectural ornament, given by Andrew Garbutt, was added to the program of studies.

The degree at Harvard University was Bachelor of Science in Architecture.

*The influence of Warren.* Throughout all of this early period at Harvard the history courses were taught by Warren and constituted one of the outstanding features of the school. Warren was convinced that the student should build his technical training on a firm foundation of the knowledge of the history of architecture; that this should not be merely a superficial knowledge of period forms, but an understanding of their meaning in relation to the times in which they were brought into being and a sense of the aesthetic principles they embodied.<sup>76</sup> He felt that the student, as the future architect, should be given this broad and scholarly background, if necessary, at the expense of some immediate training in draftsmanship. Doubtless, Warren's opinion was influenced by his early contact with Ware, with whom he agreed that a broad, cultural foundation was a stabilizing influence for architecture at a time when so many architects were still turning to fantastic and crude original forms in an attempt to be individualistic.

Warren was a romanticist; in fact, he was the leader in architectural romanticism in the United States during the nearly twenty-five years of his teaching at Harvard. Without doubt, his background of English education had a part in the molding of his philosophy, but it was largely a result of the strong influence of Charles Eliot Norton at Harvard. Norton, a close friend of Ruskin, had been the first great romanticist in the field of architecture in this country, and Warren followed his leadership. A keenly interesting lecturer, possessing the knowledge as well as the spirit of his art, Warren firmly established the romanticist approach to the study of history of architecture.

Warren summarized this philosophy of education when he said in his "Teaching of the History of Architecture":

The more he (the architecture student) appreciates the significant beauty of the Greek Temple, of the order of the Parthenon or the Erechtheum, the more he will desire to apply the same directness of design, and the same sensitive beauty of proportion and of form to his own work, and the less disposed he will be merely to copy the forms of the Greek orders. The more sensitive he becomes to the essential beauty of these forms, and the more he realizes how these forms were produced, the more he will strive to work in the spirit of the

<sup>76</sup>Herbert Langford Warren, *The Foundations of Classic Architecture*, Introduction by Fiske Kimball (New York: The Macmillan Company, 1919), p. VII.



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old designers, and the more repugnant it will be to him to slavishly copy what they have done. . . .

Only by such a study of the conditions of success in the past shall we be enabled to see clearly the conditions of success in the future; only by the conscious application of principles thus appreciated, can we hope to build again a vital and artistic tradition, which will grow out of the present, but which will be firmly based on a full knowledge of the significant forms of the past.<sup>77</sup>

The Harvard University department was the last of the early highly individualized experiments in professional architectural education and Warren was the last of the great leaders of the Early Period. From its inception the several characteristics that have always distinguished this important school were plainly evident, even during the period of highest standardization in architectural education.

*The early curriculum in architecture at Harvard University.* From the Harvard University bulletin for 1897-98 is taken the following outline of courses offered:

*First Year*—History of architecture; ancient styles with reference to classic architecture; elementary architectural drawing; principles of delineation, color and chiaroscuro; engineering mathematics; algebra; trigonometry; analytic geometry; rhetoric and English composition; German or French.

*Second Year*—Freehand drawing from architectural subjects; history of architecture; medieval styles of architecture; elementary architectural design; elementary statics; designing of simple structures; descriptive geometry; elementary shades and shadows, and perspective; stereotomy; English composition; German prose or French prose.

*Third Year*—Freehand drawing from architectural subjects; history of architecture; Renaissance and Modern architecture; architectural design, second course; building construction; carpentry; masonry and foundations; ancient art; the life of the ancient Athenians, described and illustrated by the aid of the literature and of the monuments.

*Fourth Year*—Freehand drawing from architectural subjects; architectural design, advanced; modeling; Roman and Medieval art; the private life of the Romans, chiefly illustrated by works of art; mineralogy and petrography; contracts and specifications; the principles of common law as applied to contracts; thesis.<sup>78</sup>

### SUMMARY OF THE EARLY PERIOD

There were nine well-established professional schools of architecture by 1898, the date which roughly marks the close of the Early Period.

*Status of the schools within the college organization.* All of the schools were departments of larger university units. (The school at Cornell University became an independent college in 1896.) Two departments were connected with fine arts divisions, while the remaining seven were officially departments of engineering.

*Enrollment.* In 1896 the Massachusetts Institute of Technology was the largest school (Table I). Particularly was the enrollment heavy

<sup>77</sup>H. Langford Warren, "Report of the Committee on Education of the American Institute of Architects," *American Architect*, 65:84-85, December 9, 1899.

<sup>78</sup>*Bulletin of Harvard University*, 1897-98.



TABLE I  
ENROLLMENT IN 1898\*

Compiled by the Committee on Education of the American Institute of Architects

| <i>Number of students</i>                               | <i>M. I. T.</i> | <i>Cornell</i> | <i>Illinois</i> | <i>Columbia</i> | <i>Syracuse</i> | <i>Pennsylvania</i>                 | <i>George Washington†</i> | <i>Armour Institute</i> | <i>Harvard</i> |
|---|-----------------|----------------|-----------------|-----------------|-----------------|-------------------------------------|---------------------------|-------------------------|----------------|
| First year ..... (22)‡                                  | 11              | 12             | 32              | 6               | 13              | (Enrollment by years not available) | 9                         | 12                      |                |
| Second year ..... 22                                    | 12              | 14             | 12              | 2               | 8               |                                     | 6                         | 8                       |                |
| Third year ..... 22                                     | 12              | 15             | 19              | 1               | 8               |                                     | 1                         | 7                       |                |
| Fourth year ..... 27                                    | 10              | 12             | 15              | 2               | 12              |                                     | 3                         | 9                       |                |
| Specials ..... 38                                       | 3               | 9              | 12              | 6               | 23              | 10                                  | 2                         | 21                      |                |
| Total number ..... 109                                  | 48              | 62             | 90              | 17              | 64              | 18                                  | 21                        | 57                      |                |
| Percentage graduates .. 14%                             | Not given       | 2%             | 11%             | 0%              | 6%              | Not given                           | 15%                       | 6%                      |                |
| <hr/>   |                 |                |                 |                 |                 |                                     |                           |                         |                |
| Total enrollment of regular students .....              | 384             |                |                 |                 |                 |                                     |                           |                         |                |
| Total enrollment of special students.....               | 124             |                |                 |                 |                 |                                     |                           |                         |                |
|   | <hr/>           |                |                 |                 |                 |                                     |                           |                         |                |
|   | 508             |                |                 |                 |                 |                                     |                           |                         |                |
| Proportion of special students to regular students..... | 32 per cent     |                |                 |                 |                 |                                     |                           |                         |                |
| Average enrollment per school.....                      | 43              |                |                 |                 |                 |                                     |                           |                         |                |

\*Survey of the Architecture Schools. Report of the Committee on Education, *Proceedings of the Thirty-second Annual Convention of the American Institute of Architects*, Washington, D. C., November 1-3, 1898, p. 84.

†The Committee on Education omitted George Washington University in the survey of 1898.

‡The first year at the Massachusetts Institute of Technology was common to all students and it was not possible to ascertain the exact number enrolled for architecture. Since the enrollment remained the same in the third year as in the second year, it is assumed that it would be approximately the same in the first year.

in the advanced years and in the special course. This was because of the drawing power of Despradelle in advanced design. Syracuse and George Washington were the small schools, with their enrollment only slightly exceeded by the new Armour Institute.

The total enrollment of regular professional architecture students in the United States was 384 with approximately one-third additional enrollment registered as special students.

The proportion of graduate students registered in the undergraduate professional course varied, being heaviest at the Massachusetts Institute of Technology, Columbia University, and Armour Institute (Table I). The reason for this condition at the first two institutions was the fame of Despradelle and Ware. The excellent facilities and the location of Columbia University also must have been important factors. Armour Institute, although very young, was the only professional school in the Middle West other than Illinois. It possessed a strong faculty of Chicago architects with Louis J. Millet (trained at the École des Beaux-Arts) as its head. Illinois, on the other hand, had as yet made little adjustment to the contemporary movements in education; and it is logical that Armour Institute at that time would be the more popular professional school for graduate students.

*Degrees.* The degree in all of the schools was Bachelor of Science in Architecture with the exception of Syracuse which offered the degree, Bachelor of Architecture.

*The graduate year.* Because of the heavy requirements in science and construction, and also the poor preparation of most of the students, it was felt by four of the oldest schools that four years was not sufficient time in which to complete the training needed by an architect. This belief led to the establishment of postgraduate instruction in these schools soon after they were organized. At the Massachusetts Institute of Technology, graduate work took the form of advanced *projets*; while at Cornell and Illinois, following their general philosophy of education, the more "practical" working drawing type of work was pursued. At Illinois, a large building was designed and drawn up with details and specifications complete. The graduate year at Columbia was largely a continuation of the undergraduate program, providing more individual freedom in rounding out the professional courses.

The later schools, with the exception of George Washington University, had not yet sufficiently developed at the close of the period to undertake graduate instruction.

*The special course.* Since professional standards were low and the demand for men with some training was great, there was a constant tendency for the students to leave school before completing the course. Also, the students were older than the average of today, and they had often acquired office experience previous to their entering school. These conditions naturally led to the early establishment of the short special



course. This course was arranged primarily to meet the needs of the experienced draftsman, but it tended generally to encourage all students to leave school without the essentials of architectural training, planning to return later for the special course. At Illinois it took the form of a one-year "Master Builder's" course. Although Ware discouraged it and continually reported a decreasing number of the student body in the special course at the Massachusetts Institute of Technology, yet the majority long remained in this division. At Pennsylvania it has always been an important branch of the school.

Four schools, Massachusetts Institute of Technology, Cornell, Syracuse, and Pennsylvania, offered a regular two-year curriculum. Cornell dropped it in 1887, and Massachusetts Institute of Technology did likewise in 1889. All of the schools, however, enrolled individual students on special programs of study. The number of special students was proportionately large at Massachusetts Institute of Technology, Pennsylvania, and Harvard at the close of the period (Table I, page 63). The attraction of popular design teachers again explains this situation at the first two schools, while at Harvard most of the students registered as specials were regular undergraduates in the academic division preparing for later professional study in architecture. The total number of special students constituted one-third of the total enrollment (Table I).

*The unique feature of the architectural shop.* The construction and equipment of buildings in the early days was a very simple matter in comparison with present processes. As noted previously, craftsmanship in the building arts had almost disappeared. Supervision by the architect was necessary, and to do this successfully most of the educators still thought that he should have some knowledge of building processes. An exhibition at the Centennial Exposition in 1876 of the shop work done by Russian students was a great stimulation to the American schools. Babcock felt that there was not time for this work in a crowded professional curriculum, and it was not given at Cornell; but most educators considered it to be a most necessary part of the architectural course.

Ricker was the first to organize a shop course, and in the early Illinois bulletins he gives the following summary of its objectives:

1. To acquire a knowledge of tools and manual processes in construction.
2. To distinguish between good and bad work in inspection.
3. To learn the peculiarities of materials and modes of working with them as a background for design.<sup>70</sup>

The shop course at Illinois, which was one year in length, included some instruction in each of the following subjects: framing, paneling, turning, carving, stair-building, casting and forging in metals, painting, plastering, brick-laying, stone-cutting (by means of plaster models), and testing of materials. At the Massachusetts Institute of Technology, although there was no formal shop course, instruction in this subject

<sup>70</sup>Catalogue of the Illinois Industrial University, 1874.



covered two years, two months being devoted to each of the several shops. This work included forging, casting, and filing in metals, turning and general carpentry in wood. Ware believed that, had it been possible, a shop course should have been organized at Columbia University. With the later trends of the period, however, there was no time in the architecture curriculum for detailed manual experience of this type.

*The four pioneer schools.* There were until 1880 but three important professional schools of architecture in the United States: Massachusetts Institute of Technology, Cornell University, and the University of Illinois. These schools were established at approximately the same time, and their development, although largely independent, was parallel. Each school was also stamped by a strong personality. Although it was founded approximately ten years later, the Columbia University department must be included among the pioneer institutions that made up the early formative group. These four influential schools, and particularly the Massachusetts Institute of Technology, established the general pattern of architectural education in this country.

During the eighteen-nineties the more direct influence of the École des Beaux-Arts and Neo-Classicism began gradually to change the early educational philosophy. All of the schools, established before 1900, however, were organized under the same general plan as the four original institutions.

*The two-fold problem of early educators.* The basic problem with which the pioneers in architectural education were faced was two-fold. First, they had to devise the specific type of training that would prepare students for the unprecedented needs of this newly professionalized field; and second, it was necessary to construct the program of study in such a manner as to fit into the plan of the American university. The continual adjustment of the demands of these two often-conflicting situations was everywhere apparent.

The University lecture system long dominated instruction in most of the subjects in the early schools. Because of the influence of the École-trained teachers at the Massachusetts Institute of Technology, the design class began from the first to break away from the typical university procedure. Thus began the long struggle to adapt an individual project method into an academic setting which finally resulted in the elimination of the lecture method throughout most of the professional major subjects.<sup>80</sup>

The early educators were compelled to round out the architectural program by selecting the subject matter desired from the highly segregated university compartments, and so there resulted the complex character of the American curriculum in contrast, for example, with that of the École des Beaux-Arts.

<sup>80</sup>F. H. Bosworth, Jr., and Roy Childs Jones, *A Study of Architectural Schools* (New York: Charles Scribner's Sons, 1932), p. 6.



*The domination by the engineering divisions.* One of the most important phases of this problem of the early educators was the adjustment of the architecture program to that of university engineering schools. The architecture departments were small and, with the growing emphasis upon the new science of structural engineering, it was quite logical that they be allocated to the engineering divisions. A considerable portion of the architecture program had in any case to be drawn from existing engineering courses. The viewpoint of the engineer, however, was essentially opposed to that of the architect. As a result there existed from the beginning the long struggle to free architecture from this domination, a struggle which increased as the succeeding schools were established. Ware said at the time he was called to Columbia University:

The chief difficulty in the study of architecture as well as in practice is its many sidedness . . . a school cannot narrow its range, and although, in fact, the French courses of study are mainly artistic, the German scientific, and the English practical, they all, from this very fact, fail to furnish the model we should wish to follow. The problem before us in this country is to devise a course of study so carefully adjusted that the practical, scientific, and artistic studies may receive equal consideration . . . not neglecting at the same time the languages and literature. The student of architecture cannot follow the full course of scientific construction taken by the student of civil engineering, and have any time left for the artistic and practical studies which are, after all, the distinctive characteristics of his work. . . .<sup>81</sup>

One of the important consequences of this early contact with engineering science was the long persistence of the idea that a thorough discipline in theoretical mathematics, which was for the most part unrelated to any problem in architecture, was necessary to the forming of real structural concepts in architecture.<sup>82</sup>

*Wide variation among the schools.* The individualistic tendencies throughout the American social and economic pattern were reflected in the early schools of architecture. The nature of the educational problem varied greatly with the different institutions. Each one attempted to evolve a solution in terms of the local situation as interpreted by its leaders. There was no precedent to guide them, and as yet no standards of attainment; therefore all of the early schools were little more than highly divergent personal experiments.

The struggle to obtain adequate equipment was everywhere evident. That the schools succeeded at all was due entirely to the untiring efforts of the men in charge. Particularly was it difficult to gather reference or illustrative materials. They often made use of the drawings and tracings made by the advanced students for later class reference work. Permanent models of architectural and construction units were at times made in the classes. With the resources for inspiration and information

<sup>81</sup>William Robert Ware, "Architecture at Columbia University," *American Architect*, 10:56-62, August 6, 1881.

<sup>82</sup>Bosworth and Jones, *op. cit.*, p. 24.



at the command of education today, it is difficult to realize what it meant to carry on the work of half a century ago. Ware pictures the situation in a paper read before the Alumni Association of Columbia College in 1888:

We have then not only to run our factory but invent our machinery. We have to lay out our subjects for ourselves, write our own textbooks or go without, and learn by the successes and mistakes of each year, what to do and what not to do in the next.<sup>83</sup>

In spite of the many obstacles, it is interesting to note that nearly all of the features of the complete course in architecture as developed later were present, at least in embryonic form, in the programs of the various early schools.

*Important characteristics of the individual schools.* The Massachusetts Institute of Technology was influenced from the first by the principles and methods of the École des Beaux-Arts, although these were very much modified to suit American conditions of the period. Through the broad contacts of Ware and his successors, the school early developed a well-balanced progressive program.

The instructional program at Cornell was based upon the practical

<sup>83</sup>William Robert Ware, "Instruction in Architecture at the School of Mines," a paper read before the Alumni Association of Columbia College, *School of Mines Quarterly*, 10:31-32, November, 1888.

TABLE II  
DISTRIBUTION OF SUBJECT MATTER GROUPS THROUGHOUT THE  
FOUR-YEAR CURRICULUM IN 1898\*  
Compiled by the Committee on Education of the American Institute of Architects

| Hours given to<br>subjects                    | M. I. T. |    |    |    | Cornell |    |    |    | Illinois |    |    |    | Columbia |    |    |    |
|---|----------|----|----|----|---------|----|----|----|----------|----|----|----|----------|----|----|----|
|   | Year     |    |    |    | Year    |    |    |    | Year     |    |    |    | Year     |    |    |    |
|   | 1        | 2  | 3  | 4  | 1       | 2  | 3  | 4  | 1        | 2  | 3  | 4  | 1        | 2  | 3  | 4  |
| Architectural Drawing<br>and Design . . . . . | 27       | 21 | 29 | 48 | 50      | 50 | 50 | 50 | 8        | 8  | 50 | 56 | 35       | 48 | 38 | 75 |
| Mathematics and<br>Construction . . . . .     | 36       | 23 | 24 | 9  | 17      | 25 | .. | 15 | 42       | 42 | 10 | 33 | 18       | 10 | 30 | .. |
| History of Architecture ..                    | 7        | 11 | 8  | .. | 17      | 10 | .. | .. | ..       | 30 | .. | .. | 10       | 10 | 9  | .. |
| Freehand Drawing... ..                        | 6        | 5  | 4  | 15 | 17      | 17 | .. | .. | 25       | 8  | .. | 11 | 25       | 20 | 18 | 19 |
| General Subjects. . . . .                     | 31       | 44 | 32 | 20 | 16      | 16 | 15 | 35 | 25       | 42 | 10 | .. | 12       | 12 | 5  | 6  |

\*Survey of Architecture Schools, Report of the Committee on Education, *Proceedings of the 32nd Annual Convention of the American Institute of Architects*, Washington, D. C., November 1-3, 1898, p. 5.



needs of the architectural profession of the time, with some influence from English traditions, until 1896 when it was completely reorganized.

The curriculum at Illinois was a product of the early Middle West, influenced somewhat by the German system. It was weak in design but strong in construction and architectural engineering.

Columbia, through Ware's educational philosophy, emphasized scholarship, and attempted to encourage creative non-competitive student effort. The history of architecture courses were strong and the program well integrated and the school well equipped.

Syracuse was a small school with a tendency toward non-professional objectives and a close relation to the fine arts division.

Pennsylvania was highly professional in its objectives with a strong emphasis upon design from the first. It was early influenced by the Beaux-Arts methods and academic subjects were limited to the first years.

George Washington was a small and struggling school with a tendency to emphasize the decorative aspects of architecture. It was largely a local institution with some influence from the Beaux-Arts school.

Armour Institute was a thoroughly professional school situated in a fine-arts atmosphere. It tended to follow the Beaux-Arts methods from the first.

Harvard was characterized by the background of culture and appreciation of the fine arts included in the professional program, and by the emphasis placed upon a broad scholarship in the study of architecture. There was at first only a slight influence of the École des Beaux-Arts at Harvard.

*General character of the subject matter groups.* Table II, which was compiled by the Committee on Education of the American Institute of

| <i>Syracuse</i> |    |    |    | <i>Pennsylvania</i> |    |    |    | <i>George Washington†</i> |    |    |    | <i>Armour Institute</i> |    |    |    | <i>Harvard</i> |    |    |    |
|-----------------|----|----|----|---------------------|----|----|----|---------------------------|----|----|----|-------------------------|----|----|----|----------------|----|----|----|
| <i>Year</i>     |    |    |    | <i>Year</i>         |    |    |    | <i>Year</i>               |    |    |    | <i>Year</i>             |    |    |    | <i>Year</i>    |    |    |    |
| 1               | 2  | 3  | 4  | 1                   | 2  | 3  | 4  | 1                         | 2  | 3  | 4  | 1                       | 2  | 3  | 4  | 1              | 2  | 3  | 4  |
| 36              | 45 | 36 | 45 | 16                  | 22 | 50 | 79 | 4                         | 24 | 25 | 25 | 50                      | 40 | 50 | 75 | 40             | 40 | 50 | 70 |
| 17              | 17 | 17 | 15 | 18                  | 22 | 20 | 4  | 10                        | 8  | 17 | 7  | 20                      | 26 | 18 | 8  | 22             | 20 | 10 | .. |
| 9               | 9  | 5  | 4  | 11                  | 10 | 12 | 4  | ..                        | 2  | 2  | 2  | 10                      | 10 | 10 | .. | 13             | 15 | 15 | 10 |
| 17              | 17 | 17 | 18 | 15                  | 8  | 18 | 13 | 2                         | 12 | 12 | 12 | 12                      | 15 | 15 | 17 | 10             | 15 | 15 | 10 |
| 21              | 12 | 5  | 18 | 40                  | .. | .. | .. | 16                        | 14 | 8  | 12 | 8                       | 9  | 7  | .. | 15             | 10 | 10 | 10 |

†The data on George Washington University was taken from the Bulletin of 1898, and added to the compilation of the Committee on Education.



Architects, shows the relative importance given to the five subject matter groups throughout the several curricula, as well as the general distribution throughout the four years. The data given in the table demonstrates the futility of attempting anything more than general deductions from such a quantitative study without the establishment of more definite standards for comparing the conditions in each school. It is, however, the most authentic record available at the close of the period and, as a basis for very general conclusions, it may be considered sufficiently reliable.

1. *Design.* In the earliest schools, design, as such, was relatively an unimportant subject relegated to the last years of the curriculum. Except for the beginning of the Beaux-Arts influence at the Massachusetts Institute of Technology, instruction was a result of the conditions in local American offices. Drafting and specifications for construction were emphasized and design was little more than the preparation of well-studied working drawings. From an aesthetic standpoint, it consisted of exercises in the application of the totally unrelated, popular, and romantic "styles" to practical plans for common American buildings.

The influence of the École became stronger in most of the schools as the period advanced. Design gradually developed into the most important subject throughout the curriculum (Table II, page 68). The catalogue hours devoted to it does not express the actual proportion of student time and interest devoted to this subject. There was, however, no thoroughly Beaux-Arts eclectic approach to the study of design nor a complete atelier system in any of the schools until approximately the close of the Early Period.

2. *Construction.* The subjects of mathematics, science, and construction were everywhere emphasized until the Beaux-Arts stress upon design gradually changed the philosophy of architectural education (Table II). Construction was practical and based upon American conditions. The thorough background of engineering theory was supplemented in the earliest schools with much study of materials and detailed construction processes.

3. *History of architecture.* The first history of architecture teachers were romanticists and this attitude dominated all of the early courses. With the growth of the library collections and the gradual change to the eclectic approach in design, the history of architecture came to have an additional objective. It opened to the student the great store house of the past for ready ideas to use in his architecture. At the close of the period the history courses varied from one year at Illinois to the entire four years at three of the younger schools (Table II).

4. *Drawing.* All drawing was a matter of making a faithful copy and of acquiring a drafting technique. In these subjects also the romantic attitude in the architectural sketches of the picturesque and the old was very prominent. In the first schools freehand drawing scarcely



existed and there was no drawing from life. The Massachusetts Institute of Technology, Cornell, and Illinois were still comparatively weak in this division at the close of the period (Table II). Especially in those later schools which developed in close relation with the fine arts, the drawing subjects developed rapidly.

5. *Academic subjects.* The so-called cultural subjects were a feature adapted from the American university. Ware's influence, no doubt, had much to do with the establishment of this tradition in the schools of this country. The heavy foreign language requirement resulted from the importance attached to these subjects by the academic divisions of the time. With the exception of Pennsylvania and Armour Institute, the academic subjects constituted a relatively large portion of the curriculum (Table II). Of the later schools of the period these two were the strongest from the professional standpoint.

*The early curriculum as a whole.* Ware had succeeded at Columbia University in freeing the school of architecture from most of the hindering affiliations with other divisions and in unifying the curriculum as far as the varied nature of the subject matter would then permit. In general, however, the early architecture curriculum tended from the first toward that almost complete lack of integration which has typified it to the present time. The practical needs of the American office of the period, the science of the engineer, the emotional attitude toward the past of the romanticist, the growing emphasis upon the ideals of the paper, Beaux-Arts *projet*, and the academic approach of the American university were points of view that could not be completely harmonized. The highly segregated subject matter units of the arts college from which the architecture department drew many of its general and cultural offerings was a further disintegrating factor. Under such conditions there was little possibility of providing a well-organized and effectively graded student experience. The schools of the Early Period were experimental and entirely a reflection of current conditions throughout the profession of architecture. In spite of the professional idealism of the leaders in early education, the training prepared the students for little more than work as toilers in the architecture offices of the time.

## CHAPTER III

### THE PERIOD OF ECLECTICISM

The Eclectic Period in architectural education in the United States extends from the close of the Early Period, about 1898, to 1925, when the so-called Modern trends began to appear. The conditions within the background of the profession which distinguished this era and which produced the characteristic tendencies in the rapidly expanding schools of architecture are noted in the following chapter sections.

#### FACTORS IN EARLY TWENTIETH CENTURY ARCHITECTURE

*The influence of monopoly in commerce and industry.* Individual competitive enterprise in the United States began to yield, after 1894, to monopolistic aggression and absorption.<sup>1</sup> It was the great period of the trusts and wide-spread organization in industry. With the increasing concentration of power, a relatively small group of capitalists came to dominate not only the financial and industrial life of the nation, but they tended to mould social institutions. This strong underlying force in American society was reflected in the shift at that time from the free and individualistic expressions of the romantic styles in architecture to that of the more rigid and monumental qualities of Neo-Classicism and classic Eclecticism. The American skyscraper was also significant of this social factor. It may be noted in the field of architectural education by the trend toward standardization of the school curriculum.

*Emphasis upon architectural practice as a profession.* In line with the trends of the industrial era, the architects, after the time of Thomas Jefferson, had gradually transformed the concept of the architect in his relation to the building industry and to the society which he served. The great offices of the period under discussion with their intricate organizations were completely professional in character.

The limiting, however, of the architect to a purely advisory relation to his client, without direct connection with the many phases of the building industry, tended further to remove him from the business and financial world with which the actual construction of his buildings was so intimately connected. Necessary as it was, this professionalizing of the architect as well as his lack of direct contact with engineering led his services to be looked upon by a large portion of the public as an artistic luxury. The building contractor and the "practical" engineer often took the place of the architect in the minds of the laymen.

The important reflection of this condition upon education was the

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<sup>1</sup>A. M. Simons, *Social Forces in American History* (New York: The Macmillan Company, 1925), p. 310.



emphasis upon architecture as purely a profession and the tendency to omit training in business and finance as well as in the practical problems of the construction industry. These subjects were not considered necessary to preparation for successful practice in architecture.

*New ethical standards in practice.* Under the leadership of the American Institute of Architects and the code which it had established, the ethical standards of practice became recognized to an increasing degree during this period by the better offices in important centers of the country. It was a time when much of American practice depended upon wealthy clients, big business ventures, and land inflation schemes and there was a reflection of these conditions in the methods employed by many offices. The system of self-imposed rules was devised to overcome the many abuses of free competition and misused advertising, and to improve the professional relations of the architect to his client and to the building trades. It acted to protect the interests of the public and to inspire mutual confidence among the members of the profession. In this manner the profession of architecture, at its best, was placed on an ethical standard as high as that of any other recognized profession.

The stress upon ethical ideals and elevated standards of practice formed a background of professional honor and dignity which became a much cherished heritage in architectural education. It found expression in many of the more subtle qualities of the unfolding curriculum of the American schools.

*No collaboration with the allied arts.* Some of the conditions noted in Chapter II continued and were especially prominent as contributing factors in architectural education during the period of Eclecticism.

The United States had possessed great painters and sculptors, but the lack of appreciation of their arts as the natural allies of architecture came to be almost universal. Painting and sculpture, when used, were divorced from their traditional function as the heightened statement of the personality of the building of which they were an integral part, and became merely an applied decoration significant of the owner's wealth. The Committee on Allied Arts of the American Institute of Architects, in their report of 1912, made the following statement:

Your Committee regrets having to report that it finds in recent American architecture, particularly in the ensemble, so little evidence of the successful collaborative effort of architect, painter, and sculptor, that it hesitates to proceed on the basis that their arts are, in fact, allied in anything but name. We recognize the seriousness of this condition, both in loss to the arts in question . . . and of the loss to the country itself of its birthright—a finished architecture.<sup>2</sup>

The Committee continued by stating that they believed that the trouble was lack of education. The educational situation was, however, more of a result than a cause. McKim and his associates had recognized this deficiency when they established the American Academy in Rome

<sup>2</sup>"Report of the Committee on Allied Arts," *Proceedings of the Forty-sixth Annual Convention, American Institute of Architects*, Vol. XLVI, 1912, p. 36.



in 1894, as will be explained later. Its correction was one of the chief educational objectives of the Academy. The Society of Beaux-Arts Architects had also added courses in painting and sculpture and had made some attempts to relate them to architecture. For any effective program of collaboration of the arts, however, the profession in the United States was not yet ready.

*No background of popular appreciation.* During the Eclectic Period there was little understanding or appreciation of the art of architecture by the masses in this country. As C. Grant LaFarge, then prominent member of the Committee on Education of the American Institute of Architects, said, there was no soil to nourish the humble roots from which a great art could spring, as there had been in the best periods of the past.<sup>3</sup> So-called common buildings were almost universally lacking in aesthetic qualities and were generally ugly. This absence of any collective art consciousness was a corollary of the basic conditions which produced the artificial art of Eclecticism.

*The lack of skilled craftsmen and the labor unions.* As architecture and architectural construction had developed throughout the nineteenth century there had come to be little place for the master craftsman. The greater organization of capital in twentieth century industry was balanced by the growth of the labor unions with their emphasis upon the rights of the wage earner. This tendency as well as the mass-production of materials and the lack of appreciation of the finer arts on the part of the public, further depreciated this important element in the creation of architecture. American architecture, while refined in composition, came to be lacking in those individual qualities in the working of decorative materials which only the skill of the trained craftsman can give.

The Committee on Education reported in 1912:

From time to time we have referred to the fact that while we have the most copious and widespread architectural education to be found in any country, we have practically no agencies for the education of the craftsman.<sup>4</sup>

Again, however, in this situation, education must be considered as a result rather than a cause. The lack of emphasis in the profession upon craftsmanship not only resulted in the neglect of these branches by the schools, but affected the essential structure of architectural education in the United States.

*The continued development of the science of engineering.* Use of steel in American construction was soon followed by the use of the closely allied material, reinforced concrete. This was a composite material, the accurate determination of the working strength of which had to be determined by scientific methods.

<sup>3</sup>Address by C. Grant LaFarge, Architects' Centennial Wind-up, 1936, p. 10.

<sup>4</sup>*Proceedings of the Forty-sixth Annual Convention, American Institute of Architects, Vol. XLVI, 1912, p. 47.*



Concurrently with these new complex problems arose many problems of mechanical equipment of buildings to care for the multiplying requirements of modern life.

The ever-increasing complexities of the science of construction caused the architect inevitably to depend more and more upon the specialist for the solution of his structural problems. During the Eclectic Period, therefore, the profession of structural engineering became almost completely separated from that of architecture. Likewise the accumulating mass of engineering facts made necessary a sharp line of distinction between the training requisite for the architect and that of his associate, the structural engineer.

This condition was one of the factors which tended further to obscure in the thought of the architectural designer the reality of building, to remove him from the most vital part of architecture—construction, and to encourage that attitude of mind on the part of both the practitioner and the student which led to what is characterized as paper architecture.

The rapid development in the science of constructing and equipping buildings had little to do with architectural design as it was practiced during the Eclectic Period. This alienation of the architectural engineering viewpoint from the aesthetic approach in architecture had a decided counterpart in the lack of correlation between the subjects of construction and architectural design in the curriculum of the school.

#### GROWING INFLUENCE OF THE ÉCOLE DES BEAUX-ARTS

Two new and powerful forces which directly affected both the profession and education in the field of architecture came into prominence during the eighteen-nineties. The first force was the greatly strengthened influence of the École des Beaux-Arts, especially in the East, brought about by the increasingly large number of prominent Americans who, after studying at the École, were returning to practice.

Richard Morris Hunt was the first American to attend the École. Henry Hobson Richardson was the second and Charles Follen McKim, the third student from the United States to attend the great Paris school. After 1880 there were from twelve to fifteen Americans in attendance at the École each year.<sup>5</sup> By 1900 a large group of Beaux-Arts trained men had returned and were entering practice. Because of their superior training, they were rapidly becoming the leaders both in the practice of architecture and in determining the educational policies of the profession. They imported not only the principles taught by the École, but the Beaux-Arts French architecture, and this influence changed the entire aspect of American architecture during the first decade of the century.

The principles and methods of the École, as disseminated largely through the early school at the Massachusetts Institute of Technology,

<sup>5</sup>A. D. F. Hamlin, "The Influence of the École des Beaux-Arts on American Architectural Education," *Architectural Record*, 23:242, April, 1908.



had influenced architectural education in this country from the beginning. At this time, however, they became the universal ideal in the major subjects especially throughout the Eastern schools.

One of the significant features of the movement was the calling of Beaux-Arts trained Frenchmen to instruct and usually to direct the entire program in design. Although a precedent for this had been set by Ware at the Massachusetts Institute of Technology, no other early school had followed the plan. During the first five years of the twentieth century, at every important Eastern school, design was in charge of a Frenchman, assisted in most cases by American instructors who had also studied at the École. Another distinguishing feature was the establishment of the Beaux-Arts atelier system as closely as it could be adapted to an American school. During the Early Period there had been no attempt to introduce the atelier method in its entirety. Paul Cret said in 1908:

The methods now in use all over the United States in universities of which those who have something to say are enabled to say it clearly, are those of the École.<sup>6</sup>

As will be explained later in this chapter, the younger schools of the Eclectic Period in the Middle West and in the South were at first qualified to a great extent by local conditions. However, during the latter half of the period, when the standardization of architectural education was complete, these schools were also greatly affected by the dominating Beaux-Arts element. J. Monroe Hewlett said in 1927:

The progress of the Beaux-Arts Institute of Design was the most important standardizing and unifying influence that has yet developed in architectural education.<sup>7</sup>

#### THE SOCIETY OF BEAUX-ARTS ARCHITECTS AND THE BEAUX-ARTS INSTITUTE OF DESIGN

In 1890 a small group of enthusiastic American students at the École des Beaux-Arts, imbued with the vision of furthering in this country the teachings of the great French school, pledged themselves to create a Beaux-Arts Society after their return.<sup>8</sup> Largely through the efforts of one member of this group, William A. Boring, the past director of the School of Architecture at Columbia University, the Society was formed in New York in 1893. At a formal dinner on April 3, 1893, with Boring presiding, permanent articles of organization were adopted. The charter membership was composed of seventy-two former École students.

<sup>6</sup>Paul Cret, "The École des Beaux-Arts: What Its Architectural Teaching Means," *Architectural Record*, 23:369, April, 1908.

<sup>7</sup>J. Monroe Hewlett, "Collaboration and Education," *Minutes of the 14th Annual Meeting of the Association of Collegiate Schools of Architecture*, Washington, D. C., May 9, 10, 1927, Appendix D, p. 1.

<sup>8</sup>W. Francklyn Paris, "Lloyd Eliot Warren," *Architectural Record*, 52:525, December, 1922.



*Objectives of the Society of Beaux-Arts Architects.* The ideals and purposes of the Society were clearly set forth in the following excerpt from the report of the Committee on Permanent Organization:

The means we think wise to adopt to our end are as follows: by preserving among ourselves the principles of taste required at the École des Beaux-Arts; by endeavoring to propagate these principles among the rising generation of architects and the public in general; by setting our face steadfastly against the vagaries and abuses of architecture as it is too generally practiced in the United States; by affording what encouragement we can to young men desirous of availing themselves of the extraordinary advantages for obtaining an architectural education so generously held out to us by the French government; by enlisting in our ranks, as fast as they return, young men who have had the advantages of such an education; and by working together for ultimate formation of an American school of architecture modeled after the École des Beaux-Arts.<sup>9</sup>

An active educational program was launched at once. The basic philosophy, as well as the general set up of the organization and its methods of instruction, were based directly upon those of the École. Three ateliers were then organized under leading designers from the membership of the Society.

*The first competitions.* The first general competition held by the Society of Beaux-Arts Architects was issued in September, 1894. It was open to all students of members of the Society and also to students of Columbia, Pennsylvania, Harvard, Cornell, and Syracuse universities, the Massachusetts Institute of Technology, the New York Sketch Club, the Boston Architectural Club, and the Philadelphia T-Square Club.

The subject of this first Beaux-Arts problem was, "A Small Theatre for Cantatas." The problems were required to be rendered in wash and mounted. The judgment was held at the rooms of the Sketch Club at 1473 Broadway on December 3, 1894. Forty sets of drawings were submitted. On the jury were members of the Educational Committee, John M. Carrere, Ernest Flagg, and John Galen Howard, and several members at large of the Society. A first medal was given and first and second mentions to such drawings as were judged worthy. The winner of the first medal was F. M. Mann, a student of the Massachusetts Institute of Technology, later to occupy a very important place in architectural education in the Middle West.

From this time, these competitions were held quarterly, and all students of architecture were eligible. Any group of students might choose a master and send their problems to the Society for exhibition and judgment. The judgments were later held at the Art Students League in New York.

The Beaux-Arts program of study, following that of the École, was divided into Class "A" and "B" *Projets*. There was not at this time a division of Analytiques, but the Class "B" work was divided into five order problems and five plan problems. The Society maintained some

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<sup>9</sup>Report of the Committee on Permanent Organization, *Architecture and Building*, 18:167 (1895).



instruction in drawing and modeling in connection with the Art Students League, and an examination in the history of architecture was required. A certificate of proficiency was awarded upon completion of the course. There were no fees at this time.

*The Paris Prize.* One of the group of Paris students to become interested in this educational program at its beginning was Lloyd Eliot Warren. He had graduated from the School of Arts as well as the School of Mines at Columbia University. At the end of six years of study at the École he had received the French Diplôme and had become one of the most zealous advocates of the Beaux-Arts methods and the work of the Society of Beaux-Arts Architects in America.

In 1894, largely through the efforts of Warren, the Paris Prize was established. This prize furnished to the winner two hundred and fifty dollars quarterly during a period of two years for the purpose of travel and of study at the École. The funds for the scholarship were guaranteed by the liberal support of several friends of the Society, including Warren himself.

The Paris Prize Committee was incorporated in 1904. During the same year Warren asked for the recognition of the Prize by the French government. He approached Paul Dubois, Directeur de l'École, and M. Marcel, Directeur des Beaux-Arts, who carried the matter to the École faculty and then to the Conseil Supérieur. As a result, seven paragraphs were added to article fifty of the regulations of the school which provided that young men from a foreign country presented to the French government as Paris Prize scholars with the recommendation of local officials might be admitted directly to the first class in the École. It was stipulated that they must be winners of a public competition held under the auspices of a foreign society, the membership of which was composed of at least one hundred former students of the École.<sup>10</sup>

George A. Licht, later to become a member of the staff of the School of Architecture at Columbia University, was the first recipient of this honor. At Paris he was awarded the Grande Médaille (Prix d'Émulation) of the École and was the forerunner of a long list of American Paris Prize scholars to establish outstanding records there.

*Expansion of the educational program.* The growth of the Society and its educational program was rapid. By 1903, sixteen of the original seventy-two members were connected with ateliers.<sup>11</sup> In 1905, ten years after the launching of its program, there were 238 students registered in the Beaux-Arts ateliers. Of these, 136 were in the three New York groups and the remaining 102 were distributed throughout smaller

<sup>10</sup>"The History and Aims of the Society of Beaux-Arts Architects," *American Architect*, 95:101, March 24, 1909.

<sup>11</sup>Official Records of the Beaux-Arts Institute of Design, New York City.



ateliers in other cities. In addition to this, participation in the Beaux-Arts competitions was authorized by nearly all the important schools of architecture. In 1912 there were 102 Beaux-Arts ateliers throughout the country with a total registration for the year of 994 students, and in 1913 there were 1,100 students enrolled.

The sculpture department was inaugurated in 1911 in a garret at Forty-eighth and Third Avenue in New York. Mural painting was also encouraged by the issuing of programs in conjunction with the Society of Mural Painters. In 1914 the building at 126 East Seventy-fifth Street was purchased for the exclusive use of the Society. The first floor was used for exhibitions and judgments, while the upper portion was given over to the ateliers.

Great credit is to be given the untiring efforts and sacrifice of the leaders of the Society of Beaux-Arts Architects for the important place which the Society held in the development of architectural education. Lloyd Warren, who was president of the Society in 1907-1908, held it as his chief interest throughout his life. He was convinced of the infallibility of the doctrines of the École. For twenty years he was identified with the Educational Committee of the Society and the Paris Prize Committee. He was treasurer from 1917 to 1922, and each season his name headed the list of contributions to make up the inevitable financial deficit. It was Warren who paid off the mortgage on the building on Seventy-fifth Street, and for years he gave unstintingly of his time in criticisms there.

*The Beaux-Arts Institute of Design.* The Beaux-Arts Institute of Design was organized in 1916 in order to extend the work of the Society into broader fields. The Society of Beaux-Arts Architects voluntarily surrendered to the Institute the educational privileges of its charter as well as the deed to the building. The same guiding principles were maintained, and the personnel of the committee in control remained the same. Lloyd Warren was chairman. The Beaux-Arts Institute of Design was incorporated from its inception as a school to teach design in architecture, and sculpture and painting in relation to architecture.

*Movement toward a great central American school.* An important corollary of the influence of the French school, as it was represented by the Society of Beaux-Arts Architects, was the continual advocacy, during the early years of the Eclectic Period, of the French system of centralization. The American École men deplored the many scattered schools under the domination of widely differing institutions, and the resulting mediocrity of many of the graduates. One of the aims of the Society of Beaux-Arts Architects from its beginning had been the establishment of a national school of architecture patterned after the École. Austin W. Lord, the first director of the American Academy in Rome, said, in 1903, in a paper read before the American Institute of Architects:



I think it is the hope of the profession in this country to realize the establishment of a great central school of architecture, painting and sculpture, which shall give our students sufficient training to make them thorough architects. . . . When, by the establishment of a central school founded upon the broadest lines, we have brought the student under the influence of a course of instruction which, in addition to a corps of distinguished specialists, enlists the services of a body of our strongest practicing architects, and have thereby insured a policy for the school which is influenced by correct theory on the one side and the actual practice of the profession on the other; then, and not till then, can we look forward to our emancipation from a dependence upon foreign schools.<sup>12</sup>

By 1905 establishment of a central school was the subject of continual discussion in educational circles. In that year it was definitely proposed that a central school of architecture be established in New York and that it take all of the then existing schools under its supervision.<sup>13</sup> Educators throughout the country were definitely divided upon this important question of a great national school.

The proponents of the movement were almost exclusively men who had had some contact with the École. They based their arguments upon the following premises:

1. Dissatisfaction with the results of American schools as a whole; and the realization of the need of an opportunity for more thorough and advanced professional training in America.
2. The advisability of a general check against the tendency of over-emphasis of individual preference and taste on the part of leading personalities in the different schools.
3. The improvement and better correlation of the courses in the weaker schools throughout the country with the best educational thought of the time.
4. The need of a central guiding influence in the development of a national architecture.

The large group of architects and educators who opposed this movement based their objections generally upon the following theses:

1. The establishment of a central school patterned after the École would tend to force unduly French methods upon the schools in the United States.
2. A single controlling institution would be too leveling for a large country with widely separated and differing regions.
3. The strength of American architectural education lay in the freedom of the several schools to develop along individual lines as they attempted to solve the many problems that were peculiar to this country.

The founding of a great central school doubtless would have had a profound influence upon architectural education in the United States. Education in this country, however, had developed entirely through the medium of widely separated and independent institutions, and the general tendency was individualistic. Although most of the schools eagerly took advantage of the opportunity offered by the general program of the Society of Beaux-Arts Architects and this tended, from the first,

<sup>12</sup>*Proceedings of the Thirty-seventh Annual Convention of the American Institute of Architects, Vol. XXXVII, 1903, p. 73.*

<sup>13</sup>*Proceedings of the Thirty-ninth Annual Convention of the American Institute of Architects, Vol. XXXIX, 1905, p. 47.*



toward the development of both higher and more universal standards, there was never any possibility of their being brought completely under a common controlling leadership as suggested by the Society and its proponents.

#### NEO-CLASSICISM

The second important force in the Eclectic Period came into prominence during the early eighteen-nineties as the romantic license of nineteenth century American architecture turned to Neo-Classicism. The transition was not a difficult one for, in the sense of its attitude toward a class of ancient forms, the return of the ideals of classicism was romantic. Charles Follen McKim was the great leader in the movement, the source of which lay in the increasing numbers of trained architects who were entering the profession. Especially was this true in the East. Students were returning annually from the École, where the principles of classic architecture had always been emphasized. Also graduates from the growing American schools were entering practice, many of them having been trained according to the classic ideal as it was held at such early schools as the Massachusetts Institute of Technology and Columbia University.

Because of the fact that the forces which produced the Neo-Classic movement centered largely in the East, it was there that it was first developed. The occasion which brought about its wider acceptance, however, was the World's Columbian Exposition at Chicago in 1893. It is interesting to note Sullivan's symbolic reference to the Eastern classic influence upon the directors of the Exposition:

Burnham's shadow seemed to precede or follow him on all fours, with its nose to the ground, as if perturbed. Mr. Hale's shadow seemed also perturbed and quadruped. Then came our old friend of "Tech" and Columbia, Professor William R. Ware, whose shadow seemed serene. Then all shadows disappeared from the scene.<sup>14</sup>

The Eastern group was awarded the commissions for the central and principal scheme of the Exposition, while the reminiscences of the romantic styles and the Mid-Western contribution of Louis Sullivan, were relegated largely to marginal positions.<sup>15</sup> In this respect the Exposition presented a true picture of the changes taking place in American architecture. Great expositions which sound a new note exert a powerful influence upon architecture, and this splendid ensemble of white colonnades firmly established Neo-Classicism throughout America. McKim and his school of thought thus succeeded in curbing fantastic originality with formal planning and composition, but they were at the same time instrumental in extinguishing the spark of an indigenous and

<sup>14</sup>Louis Sullivan, *Autobiography of an Idea* (New York: Press of the American Institute of Architects, Incorporated, 1926), p. 294.

<sup>15</sup>Fiske Kimball, *American Architecture* (New York: Bobbs-Merrill Company, 1928), p. 168.



living American architecture that Sullivan and his small band of Western admirers had kindled.

*Character of American Neo-Classicism.* The Neo-Classic architecture as exemplified by the work of the firm of McKim, Mead, and White was not one of blind copying of historic monuments as had been the case in the earlier romantic revivals. These architects were educated designers, who believed that what this country needed most was greater refinement in architectural form. On the basis of this philosophy they turned logically to the most highly perfected and formal of architectural canons, the classic tradition. Through the Roman Imperial Period, and especially throughout the Renaissance, architecture had been held to be primarily a matter of honest traditional decoration in beautiful materials, formally encasing a rough structure. An essential characteristic of the Renaissance had been the use of abstract form. In the eighteen-nineties it was too early to sense the inherent character of new modern materials and structural processes; and since to the designers of that time such materials as steel did not seem to demand the introduction of any radically new form, there was no reason for expressing it. They attempted to adjust plan to function, but composition was held to a formal classic unity and all architectural motifs were classic. Although their work was expressive of beauty and individuality within these limits, it was suppressed within a restricting shell of unrelated form. As William Ward Watkins recently put it: "The formula of the architects was to secure an arranged solution to be composed of elements originally characteristic of Rome, and successfully developed through the Renaissance and even through the medium of the École."<sup>16</sup> This was the ideal of the Eclectic Period.

Neo-Classicism became the most powerful and distinctive element in the architecture of this country. The École men, even at the time of greatest French influence, were forced to adjust their architectural expressions to the purity of American Classicism.

*Direct effect of the Neo-Classic movement upon education.* Since the movement embraced an educational objective from the beginning, it had a direct effect upon the schools. In fact, education was both a causal and a resultant factor. As the movement spread, designers trained in the principles of the classic tradition were increasingly in demand. There resulted an unprecedented expansion in the schools throughout the country.

#### THE AMERICAN ACADEMY IN ROME

The group of architects, painters, and sculptors who collaborated under the leadership of McKim, on the Columbian Exposition, became impressed with the need of enabling qualified students to develop their

<sup>16</sup>William Ward Watkins, "Impressions of Modern Architecture," No. 3, "The Advent of the New Manner in America," *Pencil Points*, 12:521, July, 1931.



powers more fully under the most favorable conditions of direction and environment, at the fountain head of classic art.<sup>17</sup> They desired that the ideals exemplified by the exposition might be perpetuated in architectural education. The French Academy which was then over two hundred years old constituted an object lesson, and it was quite natural that they should follow this prototype.

*Establishment of the early school in Rome and the "Roman Scholarship."* The American School of Architecture in Rome, as the institution was first called, was organized on June 12, 1894, at a meeting in the Century Club in New York City. A permanent committee was organized to complete the organization and to formulate its general policies. The personnel of this group included among others: Charles F. McKim, Richard Morris Hunt, William A. Boring, August St. Gaudens, Daniel H. Burnham, and the heads of recognized schools of architecture who promised to send students to Rome.

The objectives at first were merely to establish an atelier in Rome, to afford greater opportunity for the traveling students there and in other Italian cities, and to secure for them permits to visit the galleries and museums and to study and measure the antique monuments of the city.

The organization was completed during the fall of 1894 and the school opened under Austin W. Lord on November 1. It occupied eight rooms in the upper story of the Palazzo Torlonia on Via Condotti and the Via Bocca di Leone.<sup>18</sup> Later it was installed in larger quarters in the Villa dell'Aurora which was leased until 1906.

The institution was supported entirely by the group of architects referred to above and their friends. It was then open to architects only, but departments in the allied arts were under consideration from the first. Three traveling scholars studied there during the first winter.

The school encountered many difficulties during these first years of its existence. Students of the French Academy and similar institutions of other countries had the freedom of the city, but recognition of the new school was obtained only after months of waiting and many unsuccessful attempts to reach the heads of the Italian government.

In 1895 the "Roman Scholarship" of \$1,500 was founded. It was open to graduates of recognized schools of architecture in the United States or to Americans who had completed a minimum of two years at the École.

*Incorporation of the American Academy in Rome.* Encouraged by the enthusiasm and rapid improvement of the students, the founders in

<sup>17</sup>*Proceedings of the Thirty-seventh Annual Convention of the American Institute of Architects*, Vol. XXXVII, 1903, p. 60.

<sup>18</sup>"American School of Architecture at Rome" (Reprint from the New York Evening Post, March 1, 1895), *Architecture and Building*, 22:177, March 8, 1895.



1897, incorporated the school as the American Academy in Rome under the laws of the State of New York. At this time the departments of painting and sculpture were added. A constitution was adopted, and rules for governing the institution were formulated. In 1901 the United States government authorized the Ambassador at Rome to accept the position of trustee *ex officio* of the Academy and instructed him to secure for it all of the privileges given by the Italian government to such institutions.

For the purpose of giving a completely official standing to the Academy a bill to incorporate under an act of Congress was introduced twice and passed by the Senate only to fail in the House of Representatives. The opposing plea was made in the House that the purpose of the measure was to obtain government appropriations for the needy institution. When a third bill was pending in the House, substantial financial aid came to the Academy. With this objection removed the bill became a law on March 3, 1905.

The corporation was comprised of seventy-four men including, in addition to the original group, leaders in the field of architecture and the allied arts and several men of great wealth and influence. McKim was president of the organization from the first and continued as its head until his death in 1909.

*Endowment and new quarters.* The period following the financial panic of 1893 had not been propitious for securing funds necessary for an adequate endowment, and the existence of the Academy had been precarious. On the occasion of the annual dinner at Washington in 1905, Elihu Root announced that J. Reinhart Morgan and Henry Walters had each given one hundred thousand dollars toward a million dollar endowment. He also announced the purchase of the Villa Miraflore for a permanent site for the Academy. The Villa, which was situated near the Porta Pia, was large with spacious grounds providing ample facilities for the work of the Academy at that time. The Trustees gave a dinner to the Incorporators at the University Club in New York on March 25 of that year, at which time McKim announced additional subscriptions of one hundred thousand dollars each from William K. Vanderbilt and James Stillman, and a like sum in the name of Harvard University by friends of that institution.<sup>19</sup> Yale, Columbia, Chicago, and California universities followed with donations of one hundred thousand dollars each. Since the earthquake of 1906 at San Francisco occurred when approximately one-third of California's pledge had been raised, the university was absolved from its obligation. There followed, however, like pledges from H. C. Frick and from members of the Society of Beaux-Arts Architects, completing the million dollar endowment.

<sup>19</sup>Introduction, *Proceedings of the Thirty-eighth Annual Convention, American Institute of Architects*, Vol. XXXVIII, 1904, pp. 7-8.



*Expansion of the educational program.* Only five regular students were attending the Academy in 1905. With the income from the endowment there was appointed in 1906, by direct selection as holders of the Rome Prize, a student in each of the three branches, and during 1907 three more were appointed by competitive examination. From that time, an architect, a painter, and a sculptor were chosen every year, each student to spend three years in Rome. In addition to this, a student of landscape architecture was chosen every three years.<sup>20</sup> The privileges of the Academy had also always been extended to holders of traveling scholarships from other foundations in the United States. This hospitality had proven of great value to non-academy students, and the policy was continued.

From this time the Academy appointed each year, in addition to the director, a prominent architect, a painter, and a sculptor to give assistance to the students in Rome. Thus, assured of its stability and its recognition and with adequate permanent quarters, the Academy entered upon its comprehensive program and its long period of usefulness in the field of architectural education.

*Appointment of Mead to succeed McKim.* In 1909 occurred the death of Charles Follen McKim. His training at the École, supplemented by the early stimulus of their chief designer, Joseph Morrill Wells, and the influence of the Florentine training of Mead, had led the firm of McKim, Mead and White to become the standard bearers of the movement toward unity of abstract form, which was to become the basic philosophy of American architecture.<sup>21</sup> Austere and sensitive in his tastes and with indomitable allegiance to his ideals, McKim holds one of the most important places in the history of the profession in this country.

The burden of the presidency was very fittingly assumed by McKim's partner, William Rutherford Mead. With loyalty to the glowing vision of his predecessor, he carried on the program of the school until his death in 1928.

*Erection of the present building.* Soon after Mead's appointment, the Villa Aurelia and its spacious grounds on the Janiculum Hill were bequeathed to the Academy. Here the present building, designed to meet the specific needs of the Academy, was completed in 1914. The Academy throughout those years was the recipient of increasingly rich support in scholarships as well as endowments. These added resources made possible continued expenditures toward achieving the ideals for which it had been originated.

In 1913 the American School of Classical Studies in Rome was con-

<sup>20</sup>"Report of the Committee on Education," *Proceedings of the Fortieth Convention, American Institute of Architects*, Vol. XL, 1906, p. 82.

<sup>21</sup>Kimball, *op. cit.*, pp. 160-61.



solidated with the Academy. The objective of this institution was archaeology and classical history instead of the fine arts; however, there was much in common in the two objectives, and the combination has proved a fortunate one. Later, the Department of Music was added, thus completing the group of allied arts to collaborate there under the leadership of the mother art of architecture.

*Summary of the objectives of the American Academy in Rome.* The American Academy was not a school in the sense of an institution offering regular courses of instruction. Observation and research, rather than design, constituted the basis of the students' experience. An architectural education coupled with maturity of thought and expression were required before entrance, and upon this previous training depended much of the success of the students' work in Rome. They visited the monuments, studied and measured them, and made careful restorations. By daily intimate contact with these great examples, correct taste was cultivated and the principles essential to enduring quality in architecture were impressed upon the students' minds. The following quotation is taken from Augustus St. Gaudens, the famous sculptor, in a paper read before the American Institute of Architects Convention of 1903:

It cannot be denied that the four years of undisturbed attention, apart from the temptations of a large city, devoid of pecuniary worries and surrounded by a sympathetic environment where the whole thought is directed to the highest artistic achievement possible in the formative years of a young man's life, can be anything but an enormous assistance and of vital importance to the few who have the divine gift. If there were but one in a century who was helped in this way the institution would be worth while.<sup>22</sup>

The Academy provided a culmination to architectural training during this period. Although the students were always a carefully chosen group, the ultimate end was not so much the finished education of a privileged few chosen scholars as the improvement, through their influence, of the standards of American architecture as a whole.

In the minds of the founders there were two great objectives of the movement. First, the emphasis upon those principles of Neo-Classicism, the supremacy of formal abstract form and refined beauty of architectural expression as best exemplified and studied through the Classic and Renaissance periods; and second, a return to the collaboration of the allied arts with architecture, which had been almost entirely neglected in the United States. The great possibilities along both these lines of development were demonstrated in the architecture of the Columbian Exposition, and both were basic concepts in the establishment of the school at Rome.

It was too early for significant results along the line of the latter objective, but the first of the above principles became the most outstanding characteristics of American architecture during the period under

<sup>22</sup>*Proceedings of the Thirty-seventh Annual Convention, American Institute of Architects, Vol. XXXVII, 1903, p. 62.*



discussion. The importance of the Academy is apparent, forming as it did a culmination of the educational program in this country, and situated as it was in the ideal environment of Classicism, surrounded by the most serene and enduring monuments of ancient Rome and the Renaissance.

#### TRANSITION FROM NEO-CLASSICISM TO A BROADER ECLECTICISM

The more scholarly approach to architecture, basic to Neo-Classicism, stimulated the growth of American schools, as has already been mentioned. Especially was impetus given to the history of architecture subjects of the curricula. An increasingly large number of the trained leaders entering the profession were possessed of a broad background in historic precedent. After 1875 photographs of historic examples had begun to be available for the use of the architect. This ever increasing fund of exact information, especially in connection with architectural details, encouraged the more rationalistic eclectic approach to design.<sup>23</sup>

The École des Beaux-Arts, as noted previously, was generally eclectic throughout these years. So also were the great French teachers who at this time assumed positions of leadership in architectural education in the United States.

Another strong factor in the growth of Eclecticism in design was the influence of the time element in modern practice. The period following the depression of 1893 was one of intensive building. Everywhere plans for diversified structures followed in rapid succession through the busy American offices. In their highly professionalized organizations these offices tended to become mere plan factories. It was far easier to select a "crib" from some time-tested historical example and to adapt it to a modern situation than it was to attempt to evolve a design out of the intrinsic conditions of the problem at hand. Magonigle said:

The World's Fair in Chicago came on and turned our minds toward Greece and Rome, and another Classic revival ensued. There was no time to develop new and native envelopes for the many and diverse new structures that were to spring up over night; and so began the baneful abuse of precedent which, from the expedient of busy hours became a habit, then a method, then was erected into a virtue. . . . We know, too, the popularity of Follow-my-Leader in our profession. We know that after the issue of every new book upon some freshly exploited corner of Europe with measured details complete, an eruption appears upon the face of American architecture just as inevitably as certain people exhibit a rash after indulgence in strawberries.<sup>24</sup>

Thus it was that while the period under discussion was ushered in by Neo-Classicism, it turned inevitably through the early years to a broader Eclecticism.<sup>25</sup>

<sup>23</sup>Henry Russell Hitchcock, Jr., *Modern Architecture* (New York: Payson and Clarke, Limited, 1927), p. 48.

<sup>24</sup>H. Van Buren Magonigle, "Plagiarism as a Fine Art," *The American Architect*, 125:516, June 4, 1924.

<sup>25</sup>T. F. Hamlin, "The American Spirit in Architecture," *The Pageant of America* (New Haven, Connecticut: Yale University Press, 1926), p. 7.



*Character of American Eclecticism.* The trained architect of Eclecticism adjusted his plan to the function of his building after the formal Beaux-Arts manner. To proportion and clothe his masses he chose historic elements with great discrimination, always searching his documents of the past with character and beauty as criteria.<sup>26</sup> He copied, he adjusted, and he reassembled with a scholarly sense of architectural composition. Architecture in the United States at its best became one of the most refined in the world. On the basis of this philosophy, the student of the Eclectic Period was introduced to all of his concepts of architectural design through the medium of a faithful and plagiaristic study of the monuments of the past.

*Importance of traveling scholarships.* Emphasis upon traveling scholarships was one of the educational features which grew out of the eclectic point of view. The Rotch Traveling Scholarship, established in 1884, was the first, and for six years the only one, available to students of architecture.<sup>27</sup> From one to two years of European study was made possible for the winners.

The importance of traveling scholarships as general incentives to student effort and as a means of rounding out the education of outstanding and promising young architects came to be universally accepted. One or more of these scholarships were made available to students in all of the well-endowed schools, and several were inter-institutional in character. The ultimate objective of every ambitious student of the time was the winning of this period of travel and study. Not only did the actual contact with the historic monuments provide a most inspirational culmination to a course of study which looked to the Past for its essentials, but the competition for the honors tended to raise the entire level of student achievement.

#### GROWTH AND DEVELOPMENT OF INDIVIDUAL SCHOOLS DURING THE ECLECTIC PERIOD

The gradual processes of standardization which were such an important characteristic of this period, had matured by 1912 to the extent that this was possible in the United States. By that year the general character of the education of American Eclecticism may be considered as fully established. For the requirements of the profession of that time, the training provided by the schools was of appropriate character and adequate. It was stated in a report of the Executive Committee of the Association of Collegiate Schools of Architecture that: "The standard had become a groove systematically moulding nearly all projected

<sup>26</sup>Irving K. Pond, President of the American Institute of Architects, "What is Architecture?" *American Architect*, 972:185, May 11, 1910.

<sup>27</sup>C. H. Blackhall, "Traveling Scholarships," *The Architectural Review*, 3:35, September, 1894.



schools."<sup>28</sup> Since the best practitioners had by this time received their training directly or indirectly from the École, it was the Beaux-Arts type of graduates that they desired in their offices. It was this essential agreement among the schools as to what constituted an acceptable program in architectural education which made possible the organization in 1912 of the Association of Collegiate Schools of Architecture. During the years of the World War all development in professional education was suspended, and when, in 1918-19, the schools were reorganized it was upon the same basis. Except for one or two isolated cases which will be noted later, the character of architectural education remained unchanged during the turbulent reconstruction years until about 1925. In fact, the methods of 1912 survive in some of the schools today. This date, then, marks roughly a general culmination of the period. Afterwards all important movements center in the program of the Association. For this reason the summary in this chapter of the principles of the architectural education of Eclecticism is made at that mid-point of the period.

Although the period of Eclecticism in the United States was characterized by increasing uniformity in the educational program throughout the schools, there were significant events which centered in the individual institutions and about influential personalities of the time. A brief history of the schools of the period is given in the chronological order of their founding. For the purpose of this study the schools may be divided into the following three groups:

1. The schools established during the previous or Early Period. With the exception of the University of Illinois, these are the early and for the most part Eastern institutions which were radically affected during the first half of the Eclectic Period by the growing influence of the École des Beaux-Arts.

2. The schools established between 1898 and 1912. This group is comprised for the most part of the earliest Middle-Western and Southern institutions. During the pre-culmination years there is a distinct difference to be noted in the character of the schools in these widely separated sections of the country.

3. The schools established between 1912 and 1925. This group comprises the post-standardization institutions which were organized in every section of the country. The history of these individual schools is not of great importance to the education of the period as a whole, therefore, with the exception of certain outstanding and significant cases, only the most important events and characteristics are noted.

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<sup>28</sup>"The Future Policy of the Association of Collegiate Schools of Architecture," *Report of the Executive Committee*, Minutes of the 19th Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D. C.: April 25-26, 1932, p. 23.



## A. The Schools Established During the Previous or Early Period

*Massachusetts Institute of Technology.* Since the distinguishing educational principles of the Eclectic Period had always been to some degree the ideals of the Massachusetts Institute of Technology, there was not experienced the radical change so pronounced at that time in the other early schools. Under the leadership of Frank W. Chandler and with Desiré Despradelle in charge of design, the department continued to prosper and was recognized as the leading school in the United States during the early years of the period. The attractive traveling scholarships and prizes which were offered added to its popularity throughout the country. In 1906 there were 120 students regularly enrolled for complete professional work, and the size of the student body seemed to have reached the limit for the accommodations. Sixteen instructors were included on the teaching staff.<sup>29</sup>

Installation of the graduate year brought to the school students from all sections of the country. As early as 1902 twelve graduates were enrolled. The influence of an able and mature group with their varied backgrounds of education proved very stimulating.<sup>30</sup>

Chandler resigned in 1911 after twenty-three years as head of the department, becoming Professor Emeritus of Architecture. Despradelle carried the administrative responsibilities of the school for a brief period until the time of his death in 1912. Emerson, in his history of the school, describes Chandler as an inspiring leader; he states that the students would always linger after his lectures to talk individually with him. Through Chandler's leadership and the excellence of the design courses under Despradelle, continually increasing success had been achieved.

Despradelle, born at Chaumont, France, in 1862, entered the École des Beaux-Arts at the age of twenty, winning first place among 140 candidates. He remained a student in Atelier Pascal for seven years, and won many of the famous French prizes there. He received the diplôme in 1886. In 1889 he was awarded the Premier Second Grand Prix de Rome, and was that year made Laureat de l'Institut de France. Twice he competed for the Grand Prix during the next three years, while acting as an Inspector and Collaborator of Public Buildings for the French government. His reputation was international<sup>31</sup> before he was called to America, but it reached its zenith later, when he completed his famous design for a "Beacon of Progress," to be placed on the site of the Chicago Exposition grounds.

<sup>29</sup>"Report of the Committee on Education," *Proceedings of the Thirty-sixth Annual Convention, American Institute of Architects*, Vol. XXXVI, 1902, p. 70.

<sup>30</sup>*Proceedings of the Fortieth Annual Convention, American Institute of Architects*, Vol. XL, 1906, p. 75.

<sup>31</sup>Francis Swales, "Master Draftsmen, XI," *Pencil Points*, 6:59, May, 1925.



Despradelle practiced in Boston in addition to his work at the Massachusetts Institute of Technology. Although a brilliant designer, he never forced the student into his mode of thinking or method of attack. His great ability to reveal to the students, with his agile black pencil, good proportions in a building as developed from the plan, and his insistence upon the expression of scale, made him famous as a teacher.

William Henry Lawrence, who had for more than twenty years been in charge of architectural construction, at this time assumed the chairmanship of the architecture faculty; and although the loss of both Chandler and Despradelle was great, the momentum the school had gathered was only partially checked. In 1911 Despradelle had taught advanced design at Harvard University, sharing his valuable time with the neighboring school. This began the close relationship between the two institutions which has been so beneficial to both students and instructors. In turn, after Despradelle's death, Duquesne, the new Harvard professor, carried on by giving criticisms at the Massachusetts Institute of Technology. As a further example of the collaboration between the two schools, Warren of Harvard University was also appointed lecturer in history of architecture at the Massachusetts Institute of Technology in 1915.

James Knox Taylor, former supervising architect of the United States Treasury, was appointed to the Chair in Architecture and the directorship of the department in 1913, but he retired in 1914. Ralph Adams Cram succeeded him in the fall of that year. Cram continued active practice in the profession, however, and the administrative responsibilities were still carried by Lawrence throughout the war period.

Cram had been chairman of the Committee on Education of the American Institute of Architects for six years and a leader in educational thought as expressed by the profession. His limited field of major interest in architectural design, however, and his previous lack of contact with the more intimate problems of education, hindered his efforts in such a position. The war period was a trying one for the Massachusetts Institute of Technology, as it was for all the schools, and little development was possible.

Although design at the Massachusetts Institute of Technology had from the beginning been under the direction of a Frenchman from the *École*, no atelier system developed, and the programs of the Beaux-Arts Institute of Design had not up to that time been used. Despradelle had written nearly all of the programs for the school during his period; and quite naturally under the influence of Ralph Adams Cram and his non-classic interests, entrance into the Beaux-Arts Institute of Design competitions was not considered.

In 1919 William Emerson left his New York practice to take up the headship of the department; and in 1921 Emerson called the third French instructor, Albert Ferran, to the school. Ferran remained until

1924 when he returned to France. Jacques Carlu succeeded him, as the fourth of the distinguished graduates of the École to be called to the school.

The department at the Massachusetts Institute of Technology was thoroughly representative of the more conservative ideals of the period. It was entirely eclectic in its approach to architecture and dominated by the spirit of its great French teachers; yet there was no attempt to adopt in its entirety the École system. It was always in close contact with engineering, but design and drawing were stressed. There was a strong emphasis upon the cultural subjects as these were presented in the best universities in the country. With an American architect at its head and a French school man in charge of its major subject, it was in a very real sense a typical American school of the time.

*Cornell University.* With the appointment of John V. Van Pelt as Professor of Design in 1896 the College of Architecture at Cornell University changed completely to the Beaux-Arts system. Van Pelt was an École graduate possessing the French diplôme. Due to the popularity of the Beaux-Arts movement, the enrollment at once increased and the school continued to grow throughout the period.

Van Pelt resigned in 1901, and Arthur Cleveland Nash, a graduate of Harvard and the École des Beaux-Arts, was appointed Professor of Design. The following year both Alexander Buel Trowbridge, the dean of the college, and Nash resigned to enter practice; and Van Pelt returned as dean and Professor of Design. Van Pelt remained for two more years, when he followed Trowbridge into practice in New York City.

It was Van Pelt's plan to build up a great college of fine arts at Cornell, after the manner of the French school. He added a two-year program in painting and modeling as a beginning. These allied courses were abolished, however, when he left the university.

At this time, 1904, Martin became head of the school, which position he held until 1918. After Van Pelt's final resignation the chair of Professor of Design was occupied by a line of famous French instructors from the École: Maurice J. Prevot, 1904 to 1906; Jean Hebrard, 1906 to 1911; Georges Mauxion, 1911 to 1914.<sup>32</sup> Both Hebrard and Mauxion were called to France during the war, Hebrard returning to this country in 1925 as instructor in design at the University of Pennsylvania.

Prevot was a strong École man and during these years, when most American schools were turning increasingly to Beaux-Arts methods as far as these could be applied, Cornell was one of the leaders in the movement. Since Cornell was situated far from a large city, it was not possible to employ regularly practicing architects for atelier patrons

<sup>32</sup>Clarence A. Martin, "History of the College of Architecture at Cornell," *Cornell Architect*, 1:5, December, 1914.



as was accomplished at Columbia and Harvard; however, within the college group atelier methods prevailed.<sup>33</sup>

Albert C. Phelps, a graduate of the University of Illinois, came to Cornell in 1899 as instructor in the history of architecture. He had traveled extensively in Europe before his appointment to the history chair and later conducted many summer student tours to European centers. Phelps, who became one of the leading history of architecture teachers in the country, had charge of these courses at Cornell University until his death in 1937.

The architectural engineering option was added in 1903, the courses in construction being given by Martin. At the same time a design option was inaugurated with lighter requirements in mathematics and construction. In 1909 George B. Young, an alumnus of the College of Architecture and later to be dean of the school, was called to Cornell and was given charge of the courses in architectural engineering. He was very successful in coordinating the theory of construction with architecture and still teaches these courses.

Among the well-known men who were added to the staff during the early years of the century was a former graduate of Cornell, R. H. Shreve, now of Shreve, Lamb, and Harmon. He was instructor in the elements of architecture from 1902 to 1906.

In 1906 the school was reported to the American Institute of Architects as "flourishing."<sup>34</sup> There were eighty-six students and seven full-time instructors. At this time the school moved to its present quarters in White Hall. It then occupied the top floor only, and the students all worked together in the large drafting room.

In 1913 E. Raymond Bossange, who was a graduate of Columbia University and had studied for several years under the Society of Beaux-Arts Architects in New York, was appointed as a member of the design staff. Bossange remained only two years, leaving in 1915 to accept the position as head of the School of Applied Design at the Carnegie Institute of Technology. Shepherd Stevens succeeded him in the design department.

After Mauxion was called to Europe in 1914, Ely Jacques Kahn acted as professor of design for one year. He was a brilliant instructor, but he felt that he could not longer leave his practice in New York. Everett V. Meeks was appointed to this position in 1915, remaining at Cornell until 1919 when he became dean of the College of Fine Arts at Yale University. Stevens followed him to Yale a year later as Assistant Professor of Architecture.

In 1919 Francke Huntington Bosworth, Jr., a New York architect

<sup>33</sup>*Proceedings of the Thirty-fifth Annual Convention, American Institute of Architects, Vol. XXXV, 1901, p. 38.*

<sup>34</sup>*Proceedings of the Fortieth Annual Convention, American Institute of Architects, Vol. XL, 1906, p. 76.*



and former École man, came to Cornell as dean of the College. He also took charge of design, which position he still holds. Dean Martin, whom he succeeded, remained with the college until his retirement in 1932.

The College of Architecture at Cornell attempted through the rigid entrance requirements to maintain a high standard of scholarship. Its French École men and its strong emphasis upon Beaux-Arts methods were typical of the best Eastern schools of the period. The position of the school as an independent college was paralleled by only three other institutions. This relative independence made possible a leadership in many minor movements in architectural education throughout the period.

*University of Illinois.* During the first years of the Eclectic Period the University of Illinois, the early Middle Western school, grew rapidly. In 1902 there were only forty-four students in architecture and eighteen in architectural engineering, while in 1906, a total of 130 students was enrolled.

As noted previously, architecture as a department of the College of Engineering was apportioned \$7,500 of a \$150,000 state appropriation in 1903. This and succeeding appropriations made possible excellent equipment in the school.

Because of the liberal financial support it was also possible continuously to increase the architecture library collection. The books were chosen with special reference to the immediate needs of the students and instructors, and the library became the best working school collection in the country. It was first placed in one small room in the engineering building, then in rooms in the north end of the fourth floor, where by removal of partitions, it finally came to occupy the entire north wing. The library was very largely a result of Ricker's labors; and in 1917 it was named the Ricker Library by the Board of Trustees. There are now over 10,000 bound volumes of books on architecture and the allied arts, 15,000 lantern slides, 20,000 mounted photographs, and other materials.<sup>35</sup> In the new architecture building recently completed, the library constitutes the central and important unit.

It was doubtless a great advantage to the department of architecture that its head was also dean of the entire College of Engineering. Ricker resigned, however, as dean of engineering in 1906. He continued his association with the department of architecture, later devoting most of his time to the history of architecture classes until he retired in 1916.

From its earliest beginning, Ricker had guided the department and had been almost entirely responsible for its success. The difficulties with which this western pioneer had been faced were many, and the achievements were unique. The University of Illinois library now contains

<sup>35</sup>L. H. Provine, "The Ricker Library of Architecture—University of Illinois," (unpublished direct communication from the Department of Architecture, April 3, 1930).



fifty bound volumes of his translations of needed foreign works on architecture. Much of this work has never been published, so that it has only been available at Illinois. In addition to his other labors he devoted the leisure time of three years to deriving two original formulas for determining the actual weight of wood and steel trusses. He was also the author of several treatises on architectural engineering.

The following excerpt from the eulogy by Provost Babcock at the time of Ricker's funeral reveals the great esteem in which he was held by the university:

As good son, a graduate of its first class, by the alphabet number listed as number thirteen among the alumni, as an active professor for forty-three consecutive years, and as friend and adviser of an uncounted company of students and professional men—we give him reverence and admiration. . . . He was far sighted, tenacious of his standards of professional preparation, and tremendously loyal to his convictions in matters of conduct for himself and for those who sought entrance into his chosen profession. Modest and reticent, quiet and unassuming, he yet labored steadfastly and mightily in the growing fabric of the university for right lines and for the substance of strength, integrity, and beauty.<sup>36</sup>

The early teaching staff included J. M. White who had been the second instructor to come to the department. He was supervising architect for the university and Professor of Architectural Engineering during this period. S. J. Temple, a graduate of Columbia University, was Professor of Design from 1896 to 1904. At the time of the building of the university library, completed in 1897, Newton A. Wells, a Syracuse graduate then in Paris, was awarded the commission for the mural paintings. After the execution of the designs, he was appointed Professor of "History and Practice of Painting." Wells taught water color and rendering in the department of architecture until his retirement in 1920. In 1905, J. W. Case, Rotch traveling scholar (1892-94), succeeded Temple in architectural design. Five instructors in architecture were on the staff in 1906.<sup>37</sup>

Case was succeeded by David Varon who was Professor of Design from 1910 to 1912. In 1910 Frederick M. Mann resigned his position as head of the department at Washington University, St. Louis, and assumed the headship at Illinois. Mann remained only two years, when he left to organize the department of architecture at the University of Minnesota.

L. H. Provine, present head of the department of architecture, succeeded Mann as head of the school and instructor in architectural engineering. When Ricker retired in 1916, Rexford Newcomb, a graduate of Illinois and the present dean of the College of Fine and

<sup>36</sup>Provost Kindrick C. Babcock, "Nathan Clifford Ricker," Eulogy read at funeral services of Professor Ricker, Smith Memorial Hall, University of Illinois, Urbana, Illinois, March 22, 1924, p. 1.

<sup>37</sup>Fiske Kimball, *The Department of Architecture. Development, Condition, Ideals* (Urbana, Illinois: University of Illinois Press, 1913), p. 2.



Applied Arts, took his place as Professor of History of Architecture. Newcomb has been the leading spirit during recent years in raising the standards of the school. L. C. Dillenback was appointed to the staff in 1920 and he became chief instructor in design.

The early tendency to over-emphasize practical details of construction continued throughout most of the Eclectic Period. Ricker's background and policies and the lack of a direct influence from the Beaux-Arts, as well as the general attitude of the profession in the Middle West, were responsible for the weakness in design. Under Temple, who had graduated from Columbia before its period of strong Beaux-Arts influence, there is evidence of the same weakness in design as in Ware's course. While three years of design were included in the architecture option, much of this course was grouped under such headings as "Requirements and Planning of Buildings," or "Renaissance, Gothic, and Romanesque Design." "Monthly problems" were assigned throughout the sophomore and junior years, but they were always of a very practical nature. There was then only one year of history of architecture, while construction was taught every year.

This condition gradually improved after Temple left the school. In 1913 a modified atelier system was adopted, the upper three years of the school being divided into groups including instruction in all grades of design. Although there were six of these grades corresponding to the six semesters, students were advanced according to ability. The Beaux-Arts programs, however, were not taken until after Dillenback came and began to raise the level of achievement throughout the design courses.

Thus the University of Illinois long remained largely a product of purely American, and especially Middle Western, conditions. The school prospered, however, and, including the Department of Architectural Engineering, it was the largest school of architecture in the United States during the latter part of this period.

*Syracuse University.* Edwin H. Gaggin retired in 1902 to enter practice in Syracuse, and F. W. Revels, a member of the staff, as noted previously, succeeded him as head of the school. At that time Earl Hollenbeck, another graduate of Syracuse, came to the teaching staff after several years of practice in New York. He taught the course in architectural construction. Until 1905 Revels and Hollenbeck were the only full-time instructors in architecture, but that year Fred R. Lear, also a graduate of the school, was added as instructor in graphics and design. These three men, all alumni of Syracuse in architecture, were long to be associated with the school. There were forty-five students in 1906 including the two-year special students. The faculty numbered seven including part-time instructors.

No graduate course was offered although at this time the school conferred a Master's degree for three years of professional experience with



the completion of prescribed readings and an original work in the field of architecture.<sup>38</sup>

The department was moved from Crouse Hall to the top floor of the Steele Hall of Physics in 1909 where it again outgrew its quarters, and in 1918 it was moved to its present location, the fourth floor of the then new Slocum Building.

The emphasis upon the traditional methods of the École, established by Brockway and Gaggin, was continued at Syracuse, and in 1912 Lear was granted leave of absence to attend the École des Beaux-Arts where he was awarded the diplôme in 1919. He returned to the department in that year to take charge of design. The department of architecture has also maintained the close connection with the other divisions of the College of Fine Arts which characterized it from its inception.

In spite of the fact that Syracuse University was not a wealthy institution and the department of architecture was small, under the direction of Revels it has always been rated as one of the high grade schools of architecture of the country.

*Columbia University.* In 1902 the school at Columbia University finally realized complete independence as a unit in the university organization. This was followed by another important event, the resignation of Ware at the close of the year 1902-03, to become Professor Emeritus of Architecture until his death in 1915.

Ware possessed a background of several generations of the best of New England culture. He was not so much a great scholar as a great educator, and as an educator he was an inspirer and counselor of men rather than a pedagogue. Whether it was his inimitable classroom lectures "abounding in excursions from the main theme" or in the personal intercourse that he sought with his students, he was always pouring out the treasures of an extraordinarily cultivated mind. He believed that architecture should be taught not as a means of livelihood, but as a great and inspiring career which opened to the practitioner innumerable gates to fascinating fields of thought and action.

He was kindly and gentle, but back of his placid demeanor was a strength of purpose and firmness of principle that could not be shaken. These qualities, together with his reputation for square dealing, gained for him a position of prominence in the profession when ethical standards were low. He became the foremost leader in the reform movement, and especially in correcting the widespread abuses of the time in connection with architectural competitions. In the field of education he believed in the highest standards of broad, liberal, and creative training for professional practice. To quote from the *American Institute of Architects Journal* in an article written in 1915 at the time of Ware's death:

<sup>38</sup>*Proceedings of the Fortieth Annual Convention, American Institute of Architects, Vol. XL, 1906, p. 79.*



He [Ware] was, indeed, the virtual creator of the American system of architectural education, in that those broad features common to all our larger schools of architecture which distinguish them from the various European schools and systems rest upon conceptions which he was the first to formulate and upon methods which he, to a large extent, initiated.<sup>39</sup>

To this great pioneer more than to any other man is credit due for the character of the early foundations in architectural education in the United States, and the direct influence of his philosophy of education may be observed in many of the schools of the country throughout the Eclectic Period.

Immediately after Ware's resignation, reorganization was begun in line with the thought of the time. This was well within the period of the powerful Beaux-Arts influence which centered in New York City, and it was to be expected that the profession should be dissatisfied with Ware's policy. Although some opposition was expressed, the movement could not be withstood and Columbia soon became the leading adherent to the methods and ideals of the École. A committee of twelve New York architects was appointed by the trustees to study the school and report upon a revision of curricula and methods of instruction. This report was submitted in March, 1904, and a complete reorganization followed.<sup>40</sup>

The first measure to be carried into execution was the abolishment of the rigid four-year curriculum and class divisions. In certain departments the necessary sequence of courses was maintained, but course requirements were stated in points proportioned more or less closely to the hours required. The degree was awarded when the total number of points had been acquired. The student was free to select and group the subjects according to his capacity and convenience, with the possibility of some students being able to complete the requirements of the curriculum in three years, while others might have to prolong the period to five or six years. At this time the requirements in both drawing and design were materially increased.

The second measure was the entire remodeling of the design department into ateliers. These ateliers were opened in 1905, two being located in the down town area and the third remaining in Havemeyer Hall at the school. The Columbia drafting room was placed in charge of W. A. Delano and A. H. Gumaer as assistant, while the down town ateliers were under Charles McKim and Thomas Hastings as patrons with John Russell Pope and J. V. Van Pelt as their associates respectively. This was the year following Van Pelt's final resignation at Cornell University. Each of the outside ateliers was near the office of its patrons. A committee made up of representatives of the three ateliers arranged all the administrative details of the design work of the school.

<sup>39</sup>"William R. Ware," *American Institute of Architects Journal*, 3:384, September, 1915.

<sup>40</sup>*Proceedings of the Thirty-eighth Annual Convention, American Institute of Architects*, Vol. XXXVIII, 1904, p. 60.



The third measure which went into effect in 1906 was the change in entrance requirements. From this time Columbia required for admission two years of college training in some recognized institution. Although this was entirely in line with the thought of the best architects and educators in the profession, Columbia was the only school at that time to take such a revolutionary step.

To serve the needs of the student of recognized ability in architecture who could not comply with this admission requirement, a separate curriculum was established leading to a new form of university recognition—the Certificate of Proficiency. The entrance requirements for this curriculum were limited to the extent that they could be met by any intelligent secondary school graduate with a small amount of supplementary study in drawing and the elements of architecture.

No special course was offered at Columbia, but mature students with office experience were accepted in any subjects for which they were qualified. In this manner there were three distinct classes of students taking largely the same programs in the school.

The liberal recognition of the conspicuously able student by Columbia should be noted here. The special, non-matriculated student might, upon demonstration of distinguished proficiency, become candidate for the certificate without making up his deficiencies. This provision was obviously not applied frequently but as Hamlin said, "It recognizes the same principle to which Napoleon gave utterance when he declared to his troops that every man among them carried a marshal's baton in his knapsack."<sup>41</sup>

All of the principles at the basis of these innovations were essentially those of the *École*, modified somewhat to meet the conditions existing in an American institution. The advancing of students by a point system with no yearly program or fixed curriculum, instruction in design by ateliers with practicing architects as patrons, emphasis upon design and drawing, heavy entrance requirements, the tendency toward liberal recognition of outstanding ability, especially in design; all of these were fundamental Beaux-Arts principles. This was the ultimate trend in architectural education during the period; and Columbia University, situated as it was at the center of the movement, became at this time the chief adherent.

While many of the liberalizing developments which characterized Ware's administration were thus supplanted, yet the stamp of scholarship and high professional ideals which he held remained one of the finest traditions of Columbia University.

Drawing from life and modeling were added to the Columbia program of studies in 1900. The life class, in addition to the advanced drawing from casts, was conducted by Francis W. Jones at the National Academy

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<sup>41</sup>A. D. F. Hamlin, "The School of Architecture," Reprinted from *Columbia University Quarterly*, June, 1906, p. 220.



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of Design. Harriman continued with the beginning drawing, rendering, and the water color classes at Havemeyer Hall.

A. D. F. Hamlin took Ware's place as head of the school and began his long and successful career as instructor in history of architecture, which classes he taught at Columbia until his death in 1926. Hamlin was a scholar and an accomplished linguist in both classic and modern languages. His greatest contribution was in the field of history of architecture. In the words of Boring, Hamlin was a born idealist, and as in the case of so many other great history of architecture teachers, his approach to architecture was that of the romanticist. He was greatly respected for his constant fidelity to the School of Architecture throughout the forty-three years of his connection with Columbia University.

In 1906 there were eleven instructors in addition to McKim and Hastings. The enrollment was one hundred, including seven graduate students.

During the same year the School of Architecture was combined with the department of music under a Faculty of Fine Arts. The fine arts group was also affiliated with the departments of design, painting, and sculpture of the National Academy of Design; but these professional courses were never raised to the level of the Columbia departments, and the culmination of the plan was not realized. The combining of the departments of architecture, music, and fine arts was largely a matter of administrative convenience, and in 1914 architecture was again made a separate school under an Administrative Board made up of members of the architecture staff and the secretary of the university.

The innovations mentioned above became permanent characteristics of the Columbia school with the exception of the outside ateliers. Due to the several factors in the American professional and educational systems that strongly differ from those of France, this extreme adaptation of the atelier system proved unsuccessful. For a year or two it was reported as working well, but the outside groups, in the end, returned to the university campus. Instruction in the design classes at Columbia remained until recent years, however, largely of the atelier type. The instructors were usually practicing architects in charge of a group of the students in the school drafting room in atelier manner; and many of the most prominent New York architects were at some time so associated with the institution.

Maurice Prevot, who had resigned his position as Professor of Design at Cornell in 1906, was called to Columbia the following year. This was the first appointment of a Frenchman to the design staff at Columbia.

In 1912 Hamlin gave up his administrative responsibilities to devote his full time to the history of architecture lectures; and Austin W. Lord, a member of the New York firm of Lord and Hewlett, was appointed Professor of Architecture and head of the department. Lord resigned to return to his private practice in 1915; and, as his successor and Pro-



fessor of Design, the university appointed William A. Boring, who remained director of the School of Architecture until 1934.

Van Pelt resigned in 1913, and Maurice Prevot returned to France in 1914. To fill these vacancies, concurrently with the coming of Boring in 1915, the university appointed Francis A. Nelson as Associate in Architecture and Frederick L. Ackerman as Lecturer on Principles of Architecture. The regular architecture faculty numbered twelve in 1916.

As a further means of more closely correlating the work of the school with professional practice, a standing committee of visiting practicing architects was inaugurated by the university in 1916. These architects were elected from each of the following three New York organizations: The New York Chapter of the American Institute of Architects, the Society of Beaux-Arts Architects, and the Alumni Association of the Columbia School of Architecture. This committee is still functioning and while its work has been purely advisory, it has, through frequent visits of inspection, continually brought the objectives of the profession to the administration of the school.

The non-matriculated special student class was abolished in 1913, and in 1917 the Certificate in Architecture was also abolished. From this time, only regular candidates for the degree of Bachelor of Architecture who had satisfied the two-year entrance requirements were accepted and the professional course was normally of four years' duration.

The heavy admission requirements and the high standards of academic scholarship resulted in a smaller student body than might otherwise have been expected in such an important school. These features also tended to bar the most brilliant design students, and the atelier system with practicing architects as instructors did not produce the results in design that were obtained in some of the competing institutions. Nevertheless, with its excellent equipment, its location in the great architectural center, and the wise guidance of Boring, Columbia continued its leadership in the development of that broad and sound, if not spectacular, type of architectural education which was one of the great achievements of the period.

*University of Pennsylvania.* Thomas Nolan left Pennsylvania in 1899 to head the newly organized department of architecture at the University of Missouri. After one year, however, this project was abandoned and Nolan returned to his position at Pennsylvania as professor of construction. In 1904 the fourth-year option in architectural engineering was inaugurated under his direction. At this time Lewis F. Pilcher left the university to accept a chair at Vassar College, and C. Francis Osborne, who had resigned his position at Cornell University in 1896, took his place as instructor in history of architecture and curator of the architecture library. Huger Elliott, the present director of educational work at the Metropolitan Museum of Art in New York City, was a member of the Pennsylvania design staff from 1899 to 1901 and



served again from 1905 to 1907. In 1901 Henry C. McGoodwin, a Massachusetts Institute of Technology graduate, came to the school as instructor in graphics. McGoodwin, who had lost his right hand at the age of eighteen, had become, in spite of his handicap, a most excellent draftsman. As some of his later students remarked, "His dexterity was sinister." He published his well-known book on *Shades and Shadows* while teaching at the University of Pennsylvania.

Frank Edson Perkins resigned in 1902 after having been instructor in design for four years, and Paul Cret was appointed Professor of Design in the fall of 1903. No event could have been of greater importance to the school. A brilliant designer, with a record of unusual distinction from the École and doubtless the ablest teacher of design America has ever possessed, he has been held in the highest esteem by every student of the university.

Dana resigned in 1904; and in the same year McGoodwin went to Washington University, Philip R. Whitney, also a graduate of the Massachusetts Institute of Technology, taking his place. Whitney still conducts the graphics courses at the University of Pennsylvania. Alfred H. Gumaer, another of the present professors and for many years the instructor in history of architecture, came from Columbia University in 1907 as instructor in design.

In 1912 Leon Arnal, the present professor of design at the University of Minnesota, came to the design department. Arnal also held a brilliant record in design from the École and ably supplemented Cret in this important branch of the Pennsylvania school.

At this time there was added a novel experiment in an atelier for advanced students in design under Paul Cret. Any architect or experienced draftsman, as well as any graduate from a recognized architectural school, was eligible. There seemed to exist a real need for this opportunity for the architects to obtain advanced professional instruction under excellent guidance, and for a while the plan seemed to be very successful. It failed ultimately, however, because architects actively engaged in the profession seldom had sufficient spare time to carry through a school project.

In 1906 the traditional class lines were abolished, allowing the students to progress individually. Promotion in design was regulated from this time by the point method, after the manner of the typical modified atelier system, and the degree was given when the student had completed the required courses.

The school grew rapidly during these years in its quarters on the third floor of the old College Hall. In 1906 the University Commons, a framed structure near the men's dormitories, was given to the department for a studio building, and the structure still houses all of the studio work except that of the life class.

There were 141 students enrolled in 1906, including those in the flourishing two-year special course. They gathered from more than



half the states of the Union, and it was from this time that there began what has been termed the "Periclean Age of Pennsylvania." The group of brilliant instructors—Cret, Dawson, Everett Osborne, and Nolan, with Laird as administrative head, were unequaled. As the fame of the excellent design courses under Cret grew, they attracted the country's ablest students. The *esprit de corps* of the school was remarkable, and from about 1910 to the period of the war, Pennsylvania won more honors in national interscholastic competitions in design than all other schools combined.<sup>42</sup> The class of 1911 alone produced four Paris Prize winners and one winner of the Rome Prize.

The department celebrated the completion of its first quarter-century in 1915 by moving into a building of its own. This was the dental building vacated by that school when it moved into its splendid new structure. Although designed for the dental department, it was well adapted to the needs of the architects and furnished adequate space in comparison to crowded conditions in old College Hall. The school remained a department of the Town Scientific School until 1920, when it became a separate School of Fine Arts. There were, in 1915, 287 students, including the two-year specials.

Osborne was granted leave of absence in 1913 and died in December of that year. Gumaer then took his place as Professor of History of Architecture, which position he still holds. Both Cret and Arnal left for France in 1914, yet the school continued to flourish until the entrance of the United States into the war halted all activity in professional departments.

Cret returned in 1919 to resume his Philadelphia practice and to continue as head of the design division at the school. Although he is no longer engaged in active instruction, he still maintains a connection with the university in an advisory capacity.

The University of Pennsylvania school of architecture was the largest and was rated as the most successful in the United States during the latter half of the period under consideration. Although it was long a department of the engineering division, the affiliation resulted in no hindrance to its progress. Design and drawing were greatly emphasized, and the academic content of the curriculum was comparatively limited. In its conformity to the Beaux-Arts ideals and methods as they had been adopted by the Eastern institutions, the University of Pennsylvania was, without doubt, the most completely typical school of the Eclectic Period.

*George Washington University.* The name of the university was changed in 1903 from Columbian University to George Washington University, and in the new organization the department of architecture was placed under the general Department of Arts and Science. During

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<sup>42</sup>"Report of the Committee to Investigate the Question of Our Work in the Course in Architecture," University of Pennsylvania (unpublished typed report), 14 pp.



that year Percy Ash, a graduate of the University of Pennsylvania and then Supervising Architect of Washington, was appointed head of the department and continued in that position until 1910. Albert Burnley Bibb was added to the faculty in 1904 as instructor in architectural history, continuing upon the staff until 1933. He was head of the department from 1913 until 1923. In the latter year Norris Ingersoll Crandall, the present director of the Division of Fine Arts, was appointed to the architectural staff as its head. In 1925 Samuel Burtis Baker and Eugene Weiss, who are also prominent members of the present staff, were appointed as instructors in drawing and painting.

The department of architecture became a separate division of the university in 1905. As a result, however, of financial conditions the department was temporarily discontinued in 1910, and Ash went to the University of Michigan. In 1913, through the efforts of the Washington Chapter of the American Institute of Architects, who guaranteed the necessary financial support, it was reestablished under the leadership of Bibb. Following the tendency in the majority of the schools of that time, it was then made a department of the newly created College of Engineering and Mechanic Arts. In 1928, however, architecture was returned to its original status as a department of the Division of Fine Arts, which was at that time organized to include in addition to architecture a department of graphic art.

The degrees conferred at George Washington University were Bachelor of Science in Architecture and, for the graduate year, Master of Science in Architecture.

Throughout the period under discussion frequent changes were made in the teaching staff and architectural design was usually taught by practicing architects in Washington, D. C., on a part-time basis.<sup>43</sup> The department remained small, and its material resources were meager. The enrollment was only fifty in 1924. Under the leadership of Crandall, however, the attendance increased after that year. The department at George Washington University was not strong in the major subject of architectural design. Its distinctive characteristic remained the close affiliation with the Division of Fine Arts.

*Armour Institute of Technology.* The Chicago School of Architecture was from its inception in 1895 equally a part of the Armour Institute of Technology and the Art Institute of Chicago. This dual connection embracing the science and fine arts divisions of the curriculum respectively is still maintained, although the administrative center of the school has always remained at Armour Institute where it has ranked as a department. This collaborative movement was the result of the urgent need for a well-rounded professional school in the great metro-

<sup>43</sup>Norris I. Crandall, "History of the Department of Architecture" (unpublished typed pamphlet of George Washington University, Division of Fine Arts), p. 2 (1-2).



politan center from which emanated such important influences in American architecture. The founders wisely regarded architecture as a fine art dependent, however, upon so many engineering elements that it must be treated both as a science and an art. The schedule was so arranged that all of the technical courses were given in the morning session at the Armour Institute, leaving the afternoon sessions entirely devoted to drawing and design at the Art Institute.

The rare collection of architectural casts, the greatest in America, and the continuous exhibitions of painting and sculpture, as well as the great variety of objects of art involving applied design, were available for the use of the architecture students at the Art Institute Museum. Also the many lectures upon allied art subjects were open to them. It was reported in 1906 that the Art Institute was a "veritable hot bed of art" and the ideal home for the fine arts branches of the school.<sup>44</sup> Fifty-one students in architecture were enrolled during that year.

Walter F. Shattuck, a graduate of the University of Illinois, came to the school in 1899 as Assistant Professor of Construction. In 1902 he succeeded Louis J. Millet as head of the department, which position he held until he retired in 1915. Shattuck continued to teach the construction courses and, following the example of his early teacher, Ricker, for several years he also taught history of architecture. In 1906 Thomas Tallmage was called to the school as the instructor in design. Charles H. Hammond, an alumnus of the department, was instructor in elements of architecture, which completed the group of three regular instructors in 1906. Hammond took charge of the design courses in 1909, and Tallmage then relieved Shattuck of the history of architecture classes. Tallmage lectured in history of architecture at Armour Institute until 1926 and is well known to students of architecture through his *Story of Architecture in America*, published in 1927. There were two other famous teachers at the Art Institute whose lecture courses were regularly taken by the architecture students for many years. They were Lorado Taft in the history of sculpture and Charles Francis Browne in the history of painting. The patronage of the group of Chicago architects continued throughout this period in the form of a regular committee with Daniel H. Burnham at its head.

Millet had been a distinguished student at both the École des Arts Decoratifs and the École des Beaux-Arts in Paris. Through his influence the Art Institute branch of the school, from its inception in 1895, had tended to emulate the then popular French methods. During the early years of the twentieth century, however, as the school continued to contact the strong Middle Western University of Illinois influence, a dual situation was established. This resulted in the offering of two alternate professional curricula in architecture:

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<sup>44</sup>Year Book, Armour Institute of Technology, 1906-07, p. 109.



## 106 COLLEGIATE EDUCATION IN ARCHITECTURE

1. The regular four-year course leading to the Bachelor of Science in Architecture degree.

2. The Beaux-Arts course. The technical studies were the same as those in the four-year course, but credits in design, archaeology, drawing, modeling, and rendering were based upon the awards of a jury, composed of practicing architects and the professors in the school. Nine judgments were held each year. There were three grades after the fashion of the École system, and a definite number of mentions was required in each grade. The object of this course was an attempt to introduce some of the advantages of the École system such as the advancement of students through work done rather than by periods of study, the stimulus of competitions to open the school to young draftsmen in the offices, and a closer relationship between the students and practicing architects. In the advanced grade the students were allowed to work in an office and to complete their problems there under the criticism of the architect. A diploma was given when the total number of required mentions had been achieved.<sup>45</sup>

A two-year course, similar to those in other schools, was offered at Armour Institute of Technology. A certificate was granted at its completion.

Since the so-called Beaux-Arts course was not in line with Middle Western thought and it was not practical when applied to such a small organization, it was officially dropped in 1907. The two-year special course was dropped in the following year, and from this time only the regular four-year curriculum in architecture was maintained. No graduate year was offered at Armour Institute.

Robert C. Ostergren was appointed instructor in elements and design in 1908. Hammond left in 1910, and Andrew Nicolas Rebori, an École student, was called as Professor of Design. He was succeeded in 1913 by Edmund S. Campbell, a Massachusetts Institute of Technology graduate, who had been instructor in design at Carnegie Institute since 1908. Campbell became the head of the department the following year when Shattuck resigned. Two instructors that are still connected with the department came in 1913. They were Albert H. Krehbiel in the drawing and water color courses and William H. Lautz in graphics and design. In 1915 Earl H. Reed, Jr., was appointed Instructor in Design, and he succeeded Campbell as head of the department in 1925, when Campbell went to New York City to assume his new office as Dean of the Beaux-Arts Institute of Design. Reed was head of the school until 1938. There were six regular instructors on the staff in 1915.

While during the early years it had attempted to adopt the superficial scheme of the École and a permanent committee of practicing architects acted upon its juries, yet there was actually little influence of the French system in the methods of teaching design at the Armour Insti-

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<sup>45</sup>*Ibid.*, pp. 46, 110.



tute of Technology. Like the University of Illinois it remained largely a product of the Middle Western locality. Its close proximity to this great school at the state university doubtless accounts for its relatively slow growth in enrollment throughout the Eclectic Period. The important feature of the Chicago school was its close connection with the excellent offerings in the field of the allied arts at the Art Institute of Chicago.

*Harvard University.* As noted in the previous chapter, the donors of the new Nelson Robinson Junior Hall had also provided a fund of \$21,000 with an endowment for the enlargement of the library and the collection of lantern slides and casts. With this excellent physical equipment and the inspiring leadership of H. Langford Warren, the young professional school grew rapidly.

A program of advanced courses in design and history of architecture with an option in drawing from life was added in 1902, leading to the graduate degree of Master of Science in Architecture. Scholarship in architecture had been emphasized from the first, and each year brought greater numbers of graduates from other universities as well as from Harvard College. In this manner there was an increasing tendency to develop the course at Harvard University into a graduate program.

In 1906 the department was made one of the units of the Graduate School of Applied Science offering the degree of Master of Architecture only to students who entered with either the general or the professional architecture Bachelor's degree. Students then registered in the undergraduate course in architecture were allowed to complete it and graduate with the original Bachelor of Science degree; but the school became definitely a graduate institution admitting regularly only graduate students.<sup>46</sup> At this time the rigid curriculum was discarded, and advancement toward the graduate degree in architecture was reckoned by professional attainment rather than by years. The Harvard University School of Architecture was the only American school ever to be placed entirely upon a graduate basis.

A two-year special course leading to the Certificate of Proficiency, which was not limited to graduates, was maintained for a time for qualified students. This course should not, however, be considered as a part of the regular professional curriculum.

Fifty-eight students were enrolled in 1906 when the department became a graduate school. Seven of the ten students in the senior class of that year (1906-07), were graduate students. There were then ten regular instructors and assistants in architecture.<sup>47</sup>

<sup>46</sup>George H. Edgell, "The Schools of Architecture and Landscape Architecture," Reprint from *The Development of Harvard University*, edited by Samuel Eliot Morison, Chapter XXVII, p. 445.

<sup>47</sup>*Proceedings of the Fortieth Annual Convention, American Institute of Architects*, Vol. XL, 1906, p. 78.



To strengthen a recognized weakness in architectural engineering at the Harvard School, C. W. Killam was appointed in 1908 to add a course in resistance of materials and elementary structural design. From this time Killam continuously improved the construction department until it became one of the strongest in the United States. His courses in fundamentals of engineering and construction were extremely thorough, complete, and well arranged to meet the needs of architecture students. No architectural engineering was offered as a separate option in connection with architecture. Killam taught these well-known courses at Harvard University until 1937.

Warren had opposed the extreme influence of the French system during the early years of the school. The plan of calling practicing architects to the school as critics in design, described in the previous chapter, had been successful. By 1911, however, the burden of teaching design had become great and, in line with the tendency that had been manifested in nearly all of the Eastern schools, Warren called a brilliant and able French teacher to take charge of the design department. This was E. S. A. Duquesne, a graduate of the École des Beaux-Arts and the first winner of the Grand Prix de Rome, to come to this country. John Humphreys, who had been employed in the firm of Carrere and Hastings, New York, was also appointed at this time to assist in design.

In 1912, the department was reorganized as a separate school under the Faculty of the Graduate Schools of Applied Science. Complete independence was secured in 1914 when the Faculty of Architecture was established to include the Schools of Architecture and Landscape Architecture with entire control of the curricula and degrees of the two schools. Warren became the first dean of the school.

Duquesne was called by France in 1915, not to return to this country. William Graves Perry, Bachelor of Arts, Harvard University, Bachelor of Science in Architecture, Massachusetts Institute of Technology, and a graduate of the École, was then appointed in charge of design in association with Humphreys. In 1922, Jean Jacques Haffner, a Grand Prix de Rome man, was appointed Professor of Architecture in charge of design.

Dean Warren died in 1917, and Killam acted as head until George H. Edgell was called to the deanship from the Department of Fine Arts in 1922.

To quote from Dean Edgell:

He, Dean Warren, had been the energy, enthusiasm and driving force which, more than anything, created the school. He was not only a profound scholar of the history of art and a creative designer of ability, but a brilliant linguist and a broad minded humanist as well. His name, more than any other, will always be associated with the school.<sup>48</sup>

As noted in Chapter II, Warren's influence as a teacher of history of architecture had spread far beyond Harvard University. His broad

<sup>48</sup>Edgell, *op. cit.*, p. 446.



cultural and professional training, and his long experience in connection with professional practice had provided an excellent background for his work as an educator. This preparation coupled with his outstanding personal qualifications, equipped him well for leadership in the early years of the Eclectic Period in architectural education in America.

The friendly cooperation between the Harvard school and the department at the Massachusetts Institute of Technology was noted under the discussion of the latter school. In 1914 the experiment was tried of conducting joint design projects between the two schools and the Boston Architectural Club. The judgments and criticisms were held alternately at Harvard and the Massachusetts Institute of Technology. The plan proved very successful, and such collaborative problems were held for many years. This association between the two neighboring institutions has always proved mutually profitable.

The Harvard University school remained relatively small because of the heavy entrance requirement of the Bachelor's degree. There were only forty-four students enrolled in 1914. As a graduate institution it placed emphasis upon mature professional scholarship rather than brilliance of design. It was one of the few American schools having little direct contact with engineering. Its strong affiliations were with the fine arts branches of the University and especially with landscape architecture.

#### B. Schools Established between 1898 and 1912

*University of Notre Dame.* A four-year course in architecture was established at the University of Notre Dame in 1898 as a department of the College of Engineering which had been reorganized during the previous year as an independent division. According to the records of the university the department was launched in response to the request of two Spanish students who had been attending the École des Beaux-Arts and who wished to continue their study of architecture while mastering the English language in this country.<sup>49</sup>

Henry J. Schlacks, a Chicago architect, was first engaged to come to the university once each week to give the instruction in design. He was followed by Rolland Adelsperger who was appointed head of the department of architecture. Francis Ackermann, who is now head of the department of mechanical drawing in the College of Engineering, conducted the classes in drawing. Francis W. Kervick, the present head of the architecture school, was added to the staff in 1909.

Architecture was separated administratively from engineering in 1908, becoming an independent College of Architecture. The college was then organized with two four-year curricula, leading to the degrees of Bachelor of Science in Architecture and Bachelor of Science in Architectural Engineering. The Master's degree of Master of Science was also offered

<sup>49</sup>Bulletin of the University of Notre Dame, The Department of Architecture, December, 1932, p. 34.



at this time in the two respective branches. A two-year special course was provided at the University of Notre Dame leading to a Certificate of Proficiency. In 1919 architecture reverted to its original position as a department of the College of Engineering.

Growth in number of students, teaching staff and equipment was continuous but relatively slow. Twenty-five students were registered in architecture in 1912, one student graduating with the architecture degree in that year.

Adelsperger resigned in 1914 to take charge of the department at the Agricultural and Mechanical College of Texas, and Kervick became head of the department. Conferring of the Master's degree in Architecture was discontinued in 1924.

From the earliest years at the University of Notre Dame, courses in the fine arts had been given. Luigi Gregori, a well-known painter of Rome, had worked for twenty years at the university decorating the buildings and teaching art.<sup>50</sup> Nevertheless, architecture remained closely allied with engineering and during the years under discussion the department was not strong in either drawing or design. There was no great design teacher as in the Eastern schools of the period, and Notre Dame must be classed as another of the small group of Middle Western schools which were of distinctly local character with a strong emphasis upon practical building construction.

*Ohio State University.* A four-year course in architecture was established at the Ohio State University in 1899, leading to the unusual degree of Civil Engineering in Architecture, which was changed in 1912 to Bachelor of Architecture. The architecture course evolved from the department of engineering drawing in the College of Engineering, which had been established in 1885 under the leadership of J. N. Bradford. In 1906, however, the two departments were separated, architecture remaining under Bradford.

Three graduates of the school of this early period, after continuing their education in Eastern universities, returned to the department as instructors. They were: Charles S. J. Chubb, the present head of the school; Howard Dwight Smith, and W. C. Ronan. All of these professors, including Bradford, were long actively connected with the school.

In 1916 the curriculum was reorganized providing for two options, architecture and architectural engineering. The first year in both curricula remained in common with all engineering courses until 1933 when a five-year program was adopted. The graduate degree, Master of Architecture, was established in 1912.

Bradford was appointed University Architect in 1911 and during the eighteen years which followed he designed more than half the campus buildings. The demands of this great building program made it necessary for him to relinquish much of his teaching responsibility, and Chubb

<sup>50</sup>Bulletin of the University of Notre Dame, *loc. cit.*



became head of the department in 1923. Bradford continued to teach the classes in professional practice and building equipment.

Architecture at the Ohio State University always remained a department of the College of Engineering. Bradford was trained as an engineer and during the period under consideration greatly emphasized construction at the expense of the fine arts branches of architecture.<sup>51</sup> There was little direct influence of the Beaux-Arts and, as in the case of the department at the University of Illinois and other institutions in this region, it was largely a product of Middle Western American conditions.

The school remained relatively small throughout the period under consideration. Only thirty-nine students were enrolled in 1912.

In 1922 Herbert Baumer, a graduate of the École, was appointed Professor of Design, and under the leadership of Chubb the department then became one of the well-recognized schools of architecture in the United States.

*Washington University.* Architecture was offered at Washington University as early as 1870. To quote from Lawrence Hill in *The Washingtonian*:

The catalogues of 1871 and succeeding years announced a curriculum of study during the junior and senior years of the Engineering School calculated to transform embryonic "civils" into full fledged architects. In the light of those aesthetically benighted times, the courses were presumably designed to prepare their members for the practice of their profession. . . . How the special courses in architecture were to be given without a professor of architecture does not appear. Among the faculty as then composed there was no one who had more than a Jeffersonian knowledge of architecture, and it is perhaps not surprising if the new school did not meet with the success commensurate with the excellence of its intentions.<sup>52</sup>

In 1878-80, according to Hill, there is found evidence of a junior architecture student; according to the records, he was still a junior three years later when he withdrew. One man was reported to have graduated in architecture in 1881, but the course was dropped in 1885.

The four-year professional course in architecture was inaugurated in 1902 and opened in the fall of that year. Doubtless profiting by their previous experience, the university appointed Frederick M. Mann, referred to above in connection with the University of Illinois, as Professor of Architecture, and under his able leadership the new school was organized. A better man could hardly have been selected for this purpose. Mann was a graduate in both architecture and engineering at the Massachusetts Institute of Technology, and the early curricula at Washington University resembled those of the great Boston school.<sup>53</sup>

<sup>51</sup>Charles S. J. Chubb, "The Department of Architecture," *Ohio State Engineer* (Student Publication of Ohio State University), November, 1931.

<sup>52</sup>Lawrence Hill, "Sixty Years of Architecture," *The Washingtonian*, 7:1-8, February, 1930.

<sup>53</sup>*Proceedings of the Thirty-sixth Annual Convention, American Institute of Architects*, Vol. XXXVI, 1902, p. 73.



Architecture was established as the School of Engineering and Architecture which was a department of the School of Engineering. The degree conferred was Bachelor of Science in Architecture. An alternate course in architectural engineering was offered during the last two years which included more regular construction subjects than were required in the architecture curriculum. A graduate year leading to the degree of Master of Science in Architecture which was offered at first, was dropped, not to be re-established until 1912. The school also accepted special students, but no definite program of studies was recorded for them. The department was housed in a new building which it shared with other departments.

The beginning years were difficult. During the first year there were only two regular students and three specials. Mann also organized an evening atelier for architects and draftsmen in the city of St. Louis. Eleven students took design in this evening course during the first year, and the number grew to fifteen during the next year. The atelier used the problems of the Society of Beaux-Arts Architects.

In the year 1903-04 Louis Spiering was appointed instructor in architectural design in the evening courses, and later he took charge of design in the regular day classes. He had just graduated from the École; and, in collaboration with Mann, he established the French method at Washington University as it obtained in Eastern schools. Henry K. McGoodwin was added to the staff in 1904 coming, as noted previously, from the University of Pennsylvania. He remained but two years, withdrawing in 1906 to go to Carnegie Institute of Technology. In McGoodwin's place Wilbur Trueblood, a graduate in architecture from Columbia University, was appointed. Instruction in the neighboring St. Louis Museum of Fine Arts was controlled by the University, and the subjects of drawing from life and modeling were given there.

The department grew steadily but slowly in both enrollment and equipment. Ten regular students were enrolled in 1906 and twenty-nine in 1911. Several of the students attending this early school, however, have gained national reputations, among them, and perhaps the most widely known, being Hugh Ferriss. The department became nominally an independent School of Architecture in 1910. Its administrative head, however, has always remained the dean of the School of Engineering.

In 1910 Spiering, who had long suffered from ill health, died; and the same year Mann resigned to take up the headship of the department at Illinois. Trueblood also resigned the following year. To fill the vacancies left by Spiering and Mann, John Beverley Robinson was appointed professor in charge of the school. Robinson had practiced for many years in New York and was the author of a well-known book, *Architectural Composition*. A highly polished gentleman of the old school, he was promptly dubbed "The Duke" by the Western students. Although his lectures were scholarly and interesting, his knowledge of



design was largely theoretical. The standards in the design classes weakened under his administration, and the following year the university employed as professor of design Charles Abella, a Frenchman and a winner of the "Second Grand Prix de Rome."<sup>54</sup>

Abella was a masterful designer in the traditions of the French school; and notwithstanding a witty good humor, he was a stern taskmaster. Many were the all night "charettes" which he encouraged until through energetic protestations from the instructors, these sessions were prohibited. In this manner the Middle Western school definitely continued the methods of the École des Beaux-Arts in the teaching of design.

Abella did not succeed in accommodating himself to life in the United States, and in the spring of 1915 he resigned to return permanently to his native country. His successor was Gabriel Ferrand. At the time of his appointment Ferrand was in military service in France, and the design courses were carried on by local architects until he received his honorable discharge in the fall of that year (1915). Ferrand had received the diplôme of the École des Beaux-Arts. He had practiced in New York and subsequently had held the position of Professor of Design at the Carnegie Institute at Pittsburgh. With his excellent training and sound scholarship, his keen appreciation of the rare faculty of imagination in the architecture students as well as his attractive personality, Ferrand was ideally fitted to direct the school. In 1916, when Robinson resigned, Ferrand became professor in charge, which position he held until his death in 1934. In addition to his connection with the university, Ferrand maintained a private practice in St. Louis.

In 1915, when Ferrand arrived, only thirty-three students were enrolled, including those registered in the architectural engineering option. In addition to the two professors there were on the staff an assistant professor and an instructor. During the reconstruction years after the war, however, the school began its most rapid period of growth. In 1929 the total enrollment was 139.

Under the popular leadership of Ferrand the influence of the school became extensive. Although thoroughly trained in the classic Beaux-Arts traditions, Ferrand was a conservative modernist. The sound philosophy of contemporary American architecture which he developed at Washington University gained increasing approval from both students and practitioners as the so-called modern period in American architecture approached.

*University of California.* John Galen Howard, a brilliant young New York architect, placed third in the Phoebe A. Hearst competition for the architectural plan of the University of California in 1898. At Mrs. Hearst's request, Howard went to Berkeley as supervising architect to take charge of the development of the campus, and in 1903, he or-

<sup>54</sup>Hill, *op. cit.*, p. 5.



ganized an atelier in order to provide some training for a few promising students whom he needed as assistants in his office. It very soon became evident, however, that this practical objective had to be waived in the interest of the students; and in 1904 a four-year course was projected in connection with the University. It was organized as a department of the Liberal Arts College, and the degree conferred was Bachelor of Science in Architecture. There were ten students enrolled during that year, five men and five women.

The atelier was first housed in the Eastman Building located in the Berkeley business district near the office of the supervising architect of the campus, but later it was moved to rooms on the top floor of the First National Bank Building. Mrs. Hearst had supplied a collection of about five hundred volumes on architecture for the use of the architect in the development of the greater university group, and the library was now made freely accessible to the students.

For the first two years instruction was given only in the classic orders and elementary design. In 1905 courses were added in history and theory of architecture, drawing, modeling, and water color; and the students began taking work in construction in the Department of Civil Engineering at the university. Courses in working drawings and business relations were added later. The entire development of the department was a natural growth in response to the needs of the students as these were observed by Howard.<sup>55</sup>

Howard had been an able and distinguished student at the Massachusetts Institute of Technology, and he had studied five years at the École des Beaux-Arts. He was an influential member of the Society of Beaux-Arts Architects and had had approximately twelve years successful practice in New York. He was a man of quiet force and great reverence for his art. It was largely due to Howard's inspiring leadership and the spirit of comradeship which pervaded his school that the department was so successful.

The number of students grew rapidly, and the rented quarters became expensive and inconvenient. In January, 1906, the school moved to a temporary frame structure on the campus, the original portion of the "Ark" which still houses the School of Architecture. There were then forty-three students and, in addition to Howard who taught design and the history of architecture, there were four instructors.

At the close of the general preliminary studies of the campus plan, Howard moved his office to San Francisco, and the library was moved to the architecture building on the campus where the collection continued to increase as the school developed.

The building was always overcrowded in spite of frequent additions which spread the "Ark" picturesquely along the hillside. The large

<sup>55</sup>John Galen Howard, "Foreword," *Year Book* of the Architectural Association of the University of California, 1912, p. 3.



exhibition hall and the main lecture room were added in 1913. There were fifty-six regular architecture students in 1915; and a total of 181 students were registered in one or more classes given in the school, for it was liberal in extending its courses to students of other university departments.

In 1907 William C. Hays, then connected with Howard's office, was appointed Assistant Professor of Architecture. He divided his time between the school and the office. Warren Charles Perry, who had graduated from the department and had recently returned from two years in the École, was appointed in 1911 Instructor in Architecture. Both Hays and Perry taught design at California, and both are still connected with the school. Perry became director of the school when Howard resigned from the headship in 1927.

The drawing courses were given in the department of drawing, a separate division at California. No drawing from life was given during this period. All construction courses were taught in the Department of Civil Engineering. There was, however, no affiliation with the engineering division and no option in architectural engineering.

In design the value system was adopted after the manner of the École, the student being promoted as rapidly as was justified by his values in design.

In 1913 the department of architecture was recognized as a School independent of the Liberal Arts College, and two graduate years were added to the curriculum. The School represented the strictly professional work of the senior and graduate years.<sup>56</sup> The degree Bachelor of Science in Architecture was awarded at the end of four years and Master of Science at the end of an additional year provided the graduate requirements were satisfied. For the second graduate year the degree offered was Graduate in Architecture.

The most important step in the history of the school was taken in 1915 when the School of Architecture was nominally placed upon a graduate basis. The requirements for entrance from this time on were the Bachelor of Arts degree with a major in architecture, the Bachelor of Science degree being eliminated. A rigid curriculum in architecture during the two upper-division undergraduate years was established at this time for the regular professional students majoring in architecture. An addition of a light requirement in drawing was made to the lower-division prerequisites for this professional curriculum. In 1928 the rigid curriculum was extended to include the entire four-year undergraduate professional course. After having completed the undergraduate major, the normal period required to obtain the degree, Graduate in Architecture, was two years. This period of graduate study could be shortened to a minimum of one year by exceptional work.

<sup>56</sup>*President's Annual Report*, University of California Bulletin, Third Series, Vol. VII, No. 6, December, 1913.



While the school in California was thus classified after 1915 as a graduate school, the actual situation was very different from that which obtained at Harvard University after it had been raised to the graduate level. The undergraduate professional curriculum was largely comparable to a regular lower-division curriculum, and it was published in connection with the graduate curriculum of the school. The work was offered in the same building by the same faculty as the graduate work, and it was just as much an integral part of the architecture division as was that of the Graduate School. The complete curriculum actually resulted in about two years of Liberal Arts requirements and four years of professional requirements. This program then more closely resembled that of Columbia University after the two-year entrance requirement had been established, with one important distinction, namely, that the California students received the Bachelor of Arts degree at the end of the fourth year. In fact, the larger portion of the professional students did not enter the Graduate School, but left the institution with a professional training weaker than that given in the best four-year courses. The entire enrollment in the Graduate School fluctuated between fourteen and twenty until the year 1929 when there were twenty-nine students.

For several years the University of California maintained the only complete course in architecture on the Western coast. Through its sound professional training in design, its liberal offerings in architecture subjects open to general students, and its many exhibitions to which the public was invited, the school was of great service in fostering better standards of architecture in California. Howard was always held in the highest esteem by his students. Through his educational background, the refinement of his architecture, and his devotion to the highest ideals of his profession, he created a school in the extreme West that was recognized as comparable in every respect to the better schools of architecture in the East. Little attention was given to the fine old architectural traditions of California, but this was to be expected during the period of Eclecticism. The school at the University of California was definitely a product of the architectural philosophy of the Eclectic Period at its best.

*Carnegie Institute of Technology.* A competition, held in 1904 to select an architect for the buildings of the Carnegie Technical Schools, was won by the firm of Palmer and Hornbostel of New York. Work was immediately begun on the campus at Pittsburgh, Pennsylvania, and the Institute opened its doors in the fall of 1905. One of the first divisions to be established was the School of Applied Design, later changed to the College of Fine Arts. The school then comprised but two departments, one of them being architecture. The department of architecture was begun in 1905 by the opening of night classes under the direction of Hornbostel. The following year a faculty was organized



and both day and night classes were conducted with about fifty students enrolled.<sup>57</sup>

Henry Hornbostel had graduated from the Columbia University in 1891, and had then attended the *École des Beaux-Arts* before beginning his practice in New York. He continued to practice in Pittsburgh while acting nominally as head of the department or architecture, and he still holds the position of Professor of Design in the school.

In 1907, Henry K. McGoodwin was called from Washington University, St. Louis, and in 1912, he succeeded Hornbostel as head of the school. McGoodwin possessed a clarity of vision and courage combined with a sense of humor which made him an excellent leader. Much of the later character and success of the school was due to his efforts.

Edmund S. Campbell, a graduate of the Massachusetts Institute of Technology, was appointed Assistant Instructor of Design in 1908. Campbell left in 1914 to take the position of Professor of Design at Armour Institute, the following year to become head of the department of architecture there, as previously noted in connection with that institution. Gabriel Ferrand, who was later to take such an important part in American architectural education as head of the department at Washington University, St. Louis, was appointed Associate Professor of Architecture in 1909. He remained until called to military service in 1914.

The School of Applied Design was housed in one of the original buildings with other departments of the Institute. It was well equipped, however, and possessed a rapidly growing working library in the same building. Until 1912 the Carnegie technical schools gave no degrees, the graduates receiving diplomas.

Hornbostel was an active member of the Society of Beaux-Arts Architects, later to become its president, and the Carnegie Institute of Technology school was closely allied from its inception with the program of the Society. Patterned after the system of the *École* there was during these early years no fixed schedule of subjects. Neither was there a definite period of study. Credit in all subjects was awarded by values, and the diploma was given after the required number of values had been obtained in each of the required subjects. From the first the programs of the Society of Beaux-Arts Architects were used in all design classes, and the awards of the Beaux-Arts were accepted as school values not only in design, but in free hand drawing and modeling. With the awarding of the diploma, the certificate of membership in the Society of Beaux-Arts Architects was also given. In support of this system Henry McGoodwin said in 1915:

I believe a school of architecture until it has attained and feels that it can maintain, within itself, the highest existing or desirable standard of artistic studies, would do well to make its standards sure by the submission of its

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<sup>57</sup>Direct communication, W. F. Hitchens, present head of the Department of Architecture, Carnegie Institute of Technology, June 30, 1930.



work to juries largely exterior to its faculty, and in comparison to the best of other schools.<sup>58</sup>

In 1912 the name of the institution was changed to Carnegie Institute of Technology, and it received the power to grant degrees. A regular four-year fixed curriculum in architecture was then established leading to the degree of Bachelor of Arts in Architecture. A two-year special course was also organized admitting only students with drafting experience. There were ninety-seven regular students in 1912 and in addition to this the school continued to maintain evening classes.

It was also in 1912 that the new building for the School of Applied Design was completed. An extensive addition was made in 1916, and after 1912 all the departments of the fine arts college were housed in this spacious building. This embraced, in addition to architecture, painting and decoration, sculpture, music, and drama. The architecture library was included in this building. Also in the Carnegie Library and Institute adjacent to the campus there was an excellent collection of architecture books and casts of historic examples which constituted an invaluable extension of the school's resources.

C. Russell Hewlett became dean of the School of Applied Design in 1912, with Hornbostel as consulting dean and patron, and McGoodwin as head of the department of architecture. Hewlett, who died in 1915, was succeeded by Edward Raymond Bossange who, as noted previously, had been a member of the design staff at Cornell. Bossange was dean until 1924 when he left to assume charge of the School of Architecture at Princeton University. McGoodwin then became dean of the Fine Arts Faculties until his death in 1927.

In 1915 two options were created. At the end of the first two years of the curriculum the student chose between Option I emphasizing design leading to the degree of Bachelor of Arts in Architecture and Option II leading to the degree of Bachelor of Science in Architecture. At the same time the graduate year was added leading to the degree of Master of Arts in Architecture.

William Hitchens, the present head of the department of architecture, was appointed Instructor in Design in 1913. He had graduated from the University of Pennsylvania in 1909, and during the next four years had been engaged in practice. Harry Sternfeld was added to the design staff in 1915. Sternfeld had graduated from Pennsylvania with the famous class of 1911, had won the Paris Prize, and had obtained his Master's degree at Pennsylvania in 1914. Sternfeld became head of the department of architecture in 1918, from which position he went in 1924 to the design staff at the University of Pennsylvania. There were nine members on the architecture staff in 1915, and the student body then numbered 125 regular students.

The school at Carnegie Institute of Technology developed under quite

<sup>58</sup>*Proceedings of the Forty-ninth Annual Convention, American Institute of Architects, Vol. XLIX, 1915, Appendix E, p. iii.*



ideal circumstances in close relationship with the allied arts and without the hampering restrictions of an alliance with engineering. It followed the École system, and was closely connected from the first with the American Beaux-Arts work. The school was unusually free from administrative impediments and, in much the same manner as in the case of the early school at Columbia University, it gradually gathered all of its required subjects under its own teaching staff. To quote from McGoodwin in 1915:

We have appointed Mr. J. C. Morehead, formerly of Northwestern University, to take care of all our mathematics as we want it done; so we are now taking into our own school the last of the subjects formerly farmed out to other schools of the Institute, and our Design School faculty is self-sufficient.<sup>50</sup>

*University of Michigan.* A professional course in architecture was organized at the University of Michigan in the fall of 1906 as a sub-department of the Department of Engineering. Emil Lorch was appointed as Professor of Architecture in charge of the new school, which position he was to hold until 1936. When in 1931 the College of Architecture was separated administratively from engineering, he became dean of the new college. Lorch was a graduate of the Massachusetts Institute of Technology and had taken the Master's degree at Harvard University. He had also assisted in the Harvard school in 1902-03 while completing the graduate course. Nineteen regular professional students in architecture were enrolled during the first year, and Lorch with one assistant had charge of all of the courses.

Fitting into the scheme of the Department of Engineering, there was a four-year course in architecture and a four-year course in architectural engineering leading respectively to the degrees of Bachelor of Science in Architecture and Bachelor of Science in Architectural Engineering. The first year was, until 1911-12, common with all engineering courses. A two-year special course was offered for experienced draftsmen.

In 1914 a two-year graduate course was organized which, in combination with either of the four-year courses, resulted in a six-year professional program. The degree of Master of Science in Architecture was awarded normally at the close of the fifth year and Master of Architecture at the close of the sixth year.

The College of Architecture was created in 1913 as a division of the College of Engineering and Architecture, and the school was given control of its programs of study and in general charged with the administration of its affairs. A new four-year professional course, known as Course II, was added at this time. The new course included more design and drawing and less mathematics and construction. From this time, there were three four-year courses in the College of Architecture: Course I, the general course in architecture; Course II, emphasizing design; and Course III, emphasizing construction and building equip-

<sup>50</sup> *Loc. cit.*



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ment. The Bachelor of Science degree was given in all four-year curricula.

William C. Titcomb was appointed in 1908 to assist Lorch in teaching design and history of architecture. From 1910 until 1912 Percy Ash taught history of architecture at Michigan. Ash had been in charge of the department at the George Washington University until it was temporarily abandoned. Raymond Everett, a graduate of Harvard University and Drexel Institute, was instructor in the drawing classes from 1911 until 1915, when he went to the University of Texas.

Louis Holmes Boynton, a Rotch scholar, was appointed as Professor of Architecture in 1912 and remained in charge of design until his death in 1925. In 1915 Albert Rousseau, after five years at the École, came as Assistant Professor of Architecture. Rousseau succeeded Boynton as Professor of Design, and he held this important position until his death in 1931. George McDonald McConkey, who still teaches the courses in construction, was appointed in 1912. Fiske Kimball, well known for his works on history of architecture, lectured in this subject from 1913 to 1919. There were nine members on the architecture staff in 1915 not including instructors in the College of Engineering who taught courses in the architecture curriculum.

With a comparatively liberal budget as a state institution the library and other departmental equipment increased rapidly. By 1915 the library was a very excellent working collection. Throughout these years the department was housed with the engineering departments in the engineering building, and much of its history was conditioned by the struggle to free architecture from this alliance.

In common with the other Middle Western schools of this district, the University of Michigan did not attempt to follow the methods of the École des Beaux-Arts as did Eastern institutions. There was no École man on the staff until Rousseau was appointed in 1915, and Boynton, the head of the design division, had not attended the Paris school. The programs of the Society of Beaux-Arts Architects were never used. It was the policy at Michigan to establish a course of training in architectural design that would best meet the needs of the American profession without reference to the then popular Beaux-Arts methods. In the words of Lorch in a conversation at which the writer was present: "A school knows best its own problems and those of the community it serves." Through the untiring endeavor of Lorch the department at the University of Michigan became a school with a marked individuality and one which always maintained very high educational standards.

*Alabama Polytechnic Institute.* Architecture was established at the Alabama Polytechnic Institute in 1907 as a department of the Division of Engineering. The first head of the department was Nathaniel Cortlandt Curtis, a graduate of Columbia University. The degree



conferred was Bachelor of Science in Architecture. No special course was offered and there was no graduate year.

A four-year course in architectural engineering was added in 1917. The curricula in both architecture and architectural engineering were extended to five years in 1925, leading to the degrees of Bachelor of Architecture and Bachelor of Architectural Engineering respectively. Two years later the department was created an independent division as the School of Architecture and Allied Arts.

Twenty-two students were registered in architecture in 1912, the year in which Curtis went to Tulane University. Joseph Hudnut, who is now dean of the School of Architecture at Harvard University, became head of the department in 1912 and served until 1916 when he was succeeded by Frederic Child Biggin, the present dean of the School of Architecture and Allied Arts.

Alabama Polytechnic Institute is the oldest school of architecture in the South.<sup>60</sup> Three other Southern schools were initiated, however, within two years of its establishment—Georgia School of Technology, Tulane University, and the University of Texas. The Alabama department remained small. Although the curriculum was in general similar to that of the average Northern school, there was a natural tendency, as was true of all of the Southern schools, to emphasize local conditions in the more professional subjects.<sup>61</sup> The department was closely related to the engineering division, and the subject of construction was emphasized. Design was not included in the freshman year. There was at no time a French *École* man upon the design staff; and although the programs of the Society of Beaux-Arts Architects were sometimes used, the school did not attempt to follow the extreme Beaux-Arts methods of the Eastern schools.

*Georgia School of Technology.* The department of architecture at the Georgia School of Technology was opened to students in the fall of 1908. It was established as one of the several departments of equal rank in this engineering and technical college. The degree conferred was Bachelor of Science in Architecture. A two-year special course was maintained for experienced draftsmen leading to the Certificate of Proficiency. There was no option in architectural engineering and no graduate year at the Georgia School of Technology.

Preston A. Hopkins was in charge of the school for the first year. Then Francis P. Smith was selected to head the department and he held that position until 1922 when he was succeeded by John L. Skinner. Skinner in turn was succeeded in 1925 by the present head of the department of architecture, Harold Bush-Brown, who had come to

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<sup>60</sup>Direct communication, Frederic Child Biggin, Dean of School of Architecture and Allied Arts, Alabama Polytechnic Institute, Auburn, Alabama.

<sup>61</sup>The Department of Architecture, *Year Book* of the Tulane University, 1913-14.



the school two years previously. J. H. Gailey, who is also a member of the present faculty, came to the school in 1912.

The growth of the school was relatively rapid, there being forty-two students enrolled in 1912 and a staff of three instructors.

The department at the Georgia School of Technology was closely allied with the engineering departments of the college, and the subject of construction was emphasized. No design was given in the first year, and a full year of shop was required of the freshmen. As in the case of the Alabama Polytechnic Institute, the educational program was to a certain extent a product of local conditions. There was at no time a French *École* design instructor. The Beaux-Arts programs were taken when it was convenient, but the projects of the school were regularly judged by a jury of Atlanta architects.

*Tulane University.* A course in architectural engineering was begun at Tulane University in 1894, the architectural subjects being given by William Woodward, the instructor in graphic arts, a graduate of the Massachusetts Normal Art School of Boston. Because of financial difficulties at Tulane University, however, the department was later dropped, and Woodward devoted his time to the art courses at the H. Sophie Newcomb Memorial College for Women, which was a part of the university.

In 1908, through the combined efforts of Woodward and two of his former Tulane students who were then practicing in New Orleans, backed by the Louisiana Chapter of the American Institute of Architects, a department of architecture was reestablished. One of these alumni, Moise H. Goldstein, had later graduated from the Massachusetts Institute of Technology, and the other, S. S. Labouisse, a nephew of the great architect, H. H. Richardson, had graduated from Columbia University. These two alumni taught the design courses on a part-time basis. Allison Owen, another New Orleans architect, taught the history of architecture; and Woodward, as head of the department, taught all other architecture subjects. Four-year curricula in architecture and architectural engineering were organized as a department of the College of Technology (College of Engineering after 1920) leading to the degrees of Bachelor of Architecture and Bachelor of Architectural Engineering.

The new school was started, to quote Woodward, "On a shoe string basis—\$1,000 per year for the entire department!"<sup>62</sup> Under these circumstances it was in danger of being discontinued each year, when in 1912 the Louisiana chapter came to its rescue and guaranteed to reimburse the University for any deficit incurred. It was during this year that Nathaniel Cortlandt Curtis was called from the Alabama Polytechnic Institute to become full-time professor of architecture and head

<sup>62</sup>Direct communication, William Woodward (now retired), The Studio, Kensington Drive, Biloxi, Mississippi, July 4, 1935.



of the department at Tulane University. In the same year, 1912, the department of architecture moved to new quarters especially designed and equipped to meet its needs. There was an enrollment of only twelve students at that time.

Curtis resigned to go to the University of Illinois in 1917 where he was Associate Professor of Design for three years, returning then to practice in New Orleans, and later to be associated again with the school where he is still a member of the architecture staff. After Curtis left, the work of the department was carried on by Woodward and different graduates of Tulane who were practicing in New Orleans until John Herndon Thomson, the present head of the school, was appointed in 1921.

The department at Tulane University remained small throughout the Eclectic Period and was not adequately financed. It remained always a department of the engineering division, yet through the influence of Woodward and the strong art department of the university, the fine arts branches of architecture received greater emphasis than in the other Southern schools. The curriculum in architectural engineering was later dropped. While it was local in many of its characteristics, the program of the Tulane University department was typical of the average Southern architectural school of the time.

*University of Texas.* The first year of a professional course in architecture was inaugurated at the University of Texas in 1909. The following year Hugo Franze Kuehne was appointed Adjunct Professor of Architecture and a complete program was organized. In 1912 Friedrich Ernst Giesecke came to the school as Professor of Architecture and head of the department. Giesecke was an architectural engineer with a Master's degree from the University of Illinois; he had previously organized a department of architectural engineering at the Agricultural and Mechanical College of Texas. He remained head of the department at the University of Texas until 1927 when he returned to the former institution. Goldwin Goldsmith succeeded him in 1928. A Massachusetts Institute of Technology student, Samuel Edward Gideon was appointed Adjunct Professor in 1913; he is still upon the University of Texas staff. Raymond Everett, who had been instructor in drawing at the University of Michigan, has had charge of the freehand drawing classes since 1915.

The early course under Kuehne stressed design and drawing throughout the curriculum.<sup>63</sup> Under Giesecke, however, construction was greatly emphasized and no design was given in the first year. It was during Giesecke's administration that architectural engineering was added. At first this was in the nature of a fourth year option; but later it was extended to a four-year professional curriculum. The school

<sup>63</sup>Direct correspondence, H. F. Kuehne, Resettlement Administration, Washington, D.C.



remained always a department of the engineering division. The degree conferred was Bachelor of Science in Architecture and a graduate year leading to the degree of Master of Science in Architecture was offered from the beginning.

The school at the University of Texas was adequately financed and grew rapidly. There were fifty-six students enrolled in 1912. Today the school is housed in its own new building, one of the best equipped in the country.

*Catholic University of America.* A four-year course in architecture was established in 1911 as a department of a division in the Catholic University, then known as the School of Sciences. The degree conferred was Bachelor of Science in Architecture. A two-year special course was included leading to the Certificate of Proficiency. No graduate program was regularly offered during this period.

Frederick Vernon Murphy, a graduate of the École des Beaux-Arts, has been head of the school from its inception to the present time. Murphy gave the instruction in all the subjects until 1914 when Albert B. Bibb was appointed. Bibb, who is also a member of the present staff, assisted Murphy in the drawing and history of architecture subjects.

A four-year curriculum in architectural engineering was added in 1916, but it had little relation to architecture. The engineering and architecture departments were separated from the other sciences in 1930 and organized as a School of Engineering which was changed to the School of Engineering and Architecture in 1935.

While the department at the Catholic University was thus connected with engineering it was not affected by this affiliation. It has always used the programs of the Beaux-Arts Society and, while it has been a small school, it has been well known for its excellence in design. Without doubt the small size of the student body and the intimate contact of all members of the atelier with their able and inspiring instructor were the special features which made possible the brilliant record of the school.

#### C. Schools Established Between 1912 and 1925

*Agricultural and Mechanical College of Texas.* A course in architectural engineering was offered as early as 1905 at the Agricultural and Mechanical College of Texas. It grew out of a combined program in the civil engineering and drawing departments. F. E. Giesecke was the first head, as noted previously.

The four-year program in architecture was not established until 1912, when S. J. Fountain, an École man, succeeded Giesecke who went to the University of Texas. Fountain died in 1914 and Rolland Adelsperger was head of the department from 1914 to 1919. Adelsperger had been head of the school at Notre Dame. In 1927 Giesecke returned from the University of Texas, and in 1929 the present head of the department, Ernest Langford, was appointed in charge of the school.



The degrees were Bachelor of Science in Architecture and Bachelor of Science in Architectural Engineering. The school was always a department of the engineering division with a student body about equally divided between architecture and architectural engineering.

*Rice Institute.* The Rice Institute was founded in 1912, and one of the original departments was architecture. The professional curriculum was five years leading to the degree of Bachelor of Science in Architecture. The Bachelor of Arts degree, however, was granted at the end of the four-year period. There was no optional curriculum in architectural engineering.

William Ward Watkin has been head of the department and chief instructor in architectural design since its inception. James Henry Chillman, Jr., a fellow of the American Academy in Rome, is also a member of the present staff who has been with the department since 1917.

The Rice Institute school has maintained a small enrollment by means of a limited number of admissions each year. The candidates have been carefully selected for professional promise, and the percentage of successful students, both as regards academic scholarship and later professional achievement, has been high.

*University of Minnesota.* Courses in architecture and architectural engineering were announced at the University of Minnesota in 1912. First year classes were offered by Lewis M. Walton, a graduate of the University of Pennsylvania. The four-year programs in architecture and architectural engineering were not organized, however, until 1913 when Frederick M. Mann was appointed head of the new school. As noted previously, Mann had formerly been head of the department at Washington University and then at the University of Illinois. He was in charge of the school at the University of Minnesota until his resignation in 1936.

Mann brought with him from the University of Illinois Roy Childs Jones, a University of Pennsylvania graduate, James H. Forsythe, a graduate of Pennsylvania and Harvard Universities, and S. Chatwood Burton, an English trained artist. This was the pioneer group of instructors who perfected the organization of the school. Forsythe died in 1926; but Jones and Burton are members of the present staff. Burton is Professor of Fine Arts and Jones is the present head of the school.<sup>64</sup>

In 1919 Leon Arnal, who had been instructor in design at the University of Pennsylvania with Paul Cret, returned from the World War to take charge of design. Robert T. Jones, a University of Illinois man, was appointed in charge of construction in 1920 and Rhodes Robertson joined the design staff in 1924. All of these instructors are members of the present faculty.

<sup>64</sup>Direct communication, School of Architecture, University of Minnesota.



The school was first organized as a department of the College of Engineering, but this name was changed in 1916 to College of Engineering and Architecture. In 1925 the department became the School of Architecture as a division of this College. The degrees were Bachelor of Architecture and Bachelor of Architectural Engineering. The architectural engineering curriculum was discontinued in 1932 when the present five-year program went into effect. A graduate year in architecture was established in 1914 leading to the degree of Master of Architecture.

A four-year course in interior architecture was organized in 1923, the first two years of which program were taken in the College of Letters, Arts, and Sciences.

The connection with engineering was not a hindrance to the school at the University of Minnesota. With the leadership of Mann and the excellent faculty it became one of the strong schools of architecture in the United States.

*Yale University.* Professional courses in the fine arts were offered at Yale University as early as 1869; and the degree of Bachelor of Fine Arts was first conferred in 1891. A professional course in architecture was established as a department of the School of Fine Arts in 1913, under the direction of William Sergeant Kendall who was appointed director of the school in that year. There were then three departments: painting, sculpture, and architecture.

Everett Victor Meeks, the present dean of the College of Fine Arts, was called from Cornell University in 1919 as Professor of Architecture and head of the department of architecture; and in 1923 he succeeded Kendall as dean. Shepard Stevens, another member of the present staff, transferred from Cornell University at the same period. Otto Faelten, well-known architect and design critic, was chief of the architectural design staff from 1922 to 1933.

The architecture degree at Yale University was Bachelor of Fine Arts. The Master of Fine Arts degree was offered after 1921.

The distinguishing characteristic of the Yale University Department of Architecture, at least in theory, was its close relationship to the well-established professional courses in the allied arts. During the years of greatest emphasis upon the collaboration of the arts it was the recognized leader. It was one of the first schools to demonstrate that it was possible to maintain successfully a thoroughly professional school of the fine arts in connection with architecture in a university program.

*University of Oregon.* The School of Architecture and Allied Arts at the University of Oregon was established in 1914 with architecture as the important unit. Ellis F. Lawrence has been dean and the guiding spirit throughout the history of the school. W. R. B. Wilcox came to the University of Oregon in 1923, and his name also has been associated with the movement for which the school has become well known.

The degree at the University of Oregon was Bachelor of Architecture.



A graduate year was added in 1926 leading to the degree of Master of Architecture. Grouped around the major art of architecture were professional and semi-professional courses in painting, sculpture, design, and the crafts. There was no architectural engineering. This Far Western institution was one of the very few American schools to be administratively independent from its inception and to have no affiliation with an engineering division.

In the words of Dean Lawrence, "The school served a large virgin field, hardly touched by the art message as yet."<sup>65</sup> Under his leadership, however, it has become one of the outstanding institutions in the country. The distinctive features which have marked its progress are an intimate and effective relationship of architecture with the several allied arts and an entirely non-competitive, individual approach to the study of architecture. The University of Oregon was the first school in the United States to adopt, completely and successfully, these two basic elements of the modern movement in architectural education. It was admitted to membership in the Association of Collegiate Schools of Architecture in 1919.

*University of Washington.* Architecture was established at the University of Washington as a department of the College of Fine Arts in 1914. Carl F. Gould was head of the department from the date of its organization until 1926. He was succeeded by Harlan Thomas, the present head of the department.

The College of Fine Arts included in 1914 complete professional courses in only music and architecture. Later, professional departments in painting, sculpture, and design were added. The degree was Bachelor of Architecture. No graduate degree in architecture was offered at the University of Washington. The school was admitted to membership in the Association of Collegiate Schools of Architecture in 1925.

Architecture was made a separate department under the Liberal Arts Division of the University after 1933 when the College of Fine Arts as an independent unit was abolished.

*North Dakota State College of Agriculture and Mechanic Arts.* Four-year professional courses in architecture and architectural engineering were established at the North Dakota Agricultural College in 1914 under the direction of Walter G. Ward, a graduate in architecture of the Kansas State Agricultural College. In 1920, Ward resigned and Stanley A. Smith, who had been an instructor in the Kansas State College, was appointed in charge of the department. Three years later Smith resigned and Harvey M. King succeeded him for one year. Walter T. Rolfe, a Massachusetts Institute of Technology graduate, was appointed head of the department in 1924. Rolfe was called in 1929 to become instructor in design at the University of Texas; and

<sup>65</sup>Ellis F. Lawrence, "The School of Architecture and Allied Arts," (unpublished typewritten brochure, University of Oregon, n.d.).



Homer B. Huntoon, another Massachusetts Institute of Technology man, was head of the department until 1937.

Due to its location the department at North Dakota Agricultural College has always been small and closely affiliated with the engineering division. The degree was Bachelor of Science in Architecture. The school is not a member of the Association of Collegiate Schools of Architecture.

*Oklahoma Agricultural and Mechanical College.* A department of architectural engineering was created at the Oklahoma Agricultural and Mechanical College in 1909, as a department under the Division of Engineering. Frederic Child Biggin, the present head of the architecture school at the Alabama Polytechnic Institute, was appointed head of the Oklahoma department in 1911, remaining until 1916. In the latter year a four-year course in architecture was first introduced leading to the degree of Bachelor of Science in Architecture.<sup>66</sup> Frederick Wilhelm Redlich (Diploma Architect, Royal School of Architecture, Stuttgart, Germany) became head of the school at this time. The following year a two-year special course leading to the Certificate of Proficiency was offered, but it was dropped in 1926.

Preston Murdoch Geren succeeded Redlich for two years, 1921 to 1923, after which Redlich returned for two additional years. From 1925 to 1927 Clair Fred Drury, an Illinois graduate, was in charge and he was succeeded by Philip Armour Wilber, a former graduate of the school, who had been a member of the staff since 1919 and who is the present head of the school.

In 1926 the Department of Architecture and Architectural Engineering became the School of Architecture and Industrial Art, which was changed in the following year to School of Architecture and Applied Art under the Division of Engineering.

There were six members upon the regular architecture staff in 1930. It was in that year that the curriculum was increased to five years, leading to the degree of Bachelor of Architecture.

*Clemson Agricultural College.* A department of architecture was organized in the Engineering Division of Clemson Agricultural College in 1917. During the early years, however, the engineering branches of the curriculum were greatly stressed, and the first year was common to architecture and engineering. Rudolph Edward Lee has been head of the department since its establishment.

The degree was Bachelor of Science in Architecture. There was no graduate year. After 1932 a five-year optional curriculum was offered leading to the degree of Bachelor of Architecture.

The department at Clemson Agricultural College has remained rela-

<sup>66</sup>Unpublished History of the School of Architecture and Applied Art, Oklahoma Agricultural and Mechanical College.



tively small. It is not a member of the Association of Collegiate Schools of Architecture.

*University of Virginia.* The McIntire School of Fine Arts was established at the University of Virginia in 1918. It comprised three departments: art, architecture, and music. The department of architecture reestablished the program outlined in the first curriculum just one hundred years earlier. The degree was Bachelor of Science in Architecture.

Fiske Kimball, who had previously been a member of the staff at the University of Michigan, was appointed Professor of Art and Architecture and head of the new department. Kimball remained at the University of Virginia four years when he resigned, two years later to become director of the Pennsylvania Museum of Art. He was succeeded in 1923 by Joseph Hudnut. Hudnut resigned to join the architecture staff at Columbia University in 1927; and Edmund S. Campbell, the present head of the school, who had previously been director of the Beaux-Arts Institute of Design, became Professor of Art and Architecture.

An arrangement with Harvard University was perfected in 1925 providing regularly for a combined curriculum of the four years at the University of Virginia and two additional years of graduate study at the northern institution leading to the Harvard degree of Master of Architecture. The graduate degree of Master of Science in Architecture for a year of graduate study at the local school was also offered after 1928.

The University of Virginia department of architecture remained small and it did not become a member of the Association of Collegiate Schools of Architecture. It is especially characterized by its background of Southern cultural tradition and its emphasis upon architecture as a fine art. The department was closely related from its inception to the other departments of the School of Fine Arts.

*Kansas State Agricultural College.* A four-year course in architecture was nominally established at the Kansas State College in 1904 with J. D. Walters as head. It was, however, largely engineering and great stress was placed upon working drawings and practical details of construction. Architectural design, as such, was not given. The entire course was organized to meet the local and rural needs of the region. It was not until 1918 when Cecil F. Baker succeeded Walters that a complete course in architecture was organized.

The degree was Bachelor of Science in Architecture and the graduate degree of Master of Science in Architecture was offered after 1915. A separate curriculum in architectural engineering was added in 1926 leading to the degree of Bachelor of Science in Architectural Engineering.

Baker resigned to join the staff at the University of Cincinnati in 1924, and Paul Weigel, the present head of the department, succeeded



him. The school at Kansas State College has always remained a department of the Division of Engineering. It was admitted to membership in the Association of Collegiate Schools of Architecture in 1923.

*University of Kansas.* A department of architectural engineering was established in 1912 in the School of Engineering at the University of Kansas. Goldwin Goldsmith, a Columbia University graduate, was the head of the department, and through his efforts a separate course in architecture was added in 1919 leading to the degree of Bachelor of Science in Architecture. A graduate year leading to the degree of Master of Architecture was organized in the same year. The school was admitted to the Association of Collegiate Schools of Architecture in 1920. In 1927 the name of the division was changed to School of Engineering and Architecture; but architecture remained administratively a department of the engineering division.

Goldsmith resigned in 1928 to become head of the school at the University of Texas, and Joseph M. Kellogg, who had been a prominent member of the University of Kansas staff, was appointed head of the department, which position he now holds. Under Kellogg's direction a positive contribution has been made toward the growing modern movement in architectural education.<sup>67</sup>

*University of Southern California.* A four-year course in architecture was established at the University of Southern California as a department of the College of Liberal Arts in 1919. With the assistance of the Allied Architects' Association of Southern California, which was at that time a powerful organization, the department was made an independent school of architecture in 1925 and six years later, a College of Architecture.

The curriculum was lengthened to five years in 1925 leading to the degree of Bachelor of Architecture. Professional four-year courses in painting, sculpture, and design were also established at that time, and in 1933 the name was changed to College of Architecture and Fine Arts. A sixth year graduate course was added in 1932 leading to the degree of Master of Architecture.

A. C. Weatherhead has been head of the school since its inception, becoming dean when it was made a college. Raymond M. Kennedy, a Rome scholar, has been chief of the architectural design staff since his appointment in 1930. The college was admitted to membership in the Association of Collegiate Schools of Architecture in 1928.

*University of New Hampshire.* The department of architecture at the University of New Hampshire was established in the College of Technology in 1919. The degree was Bachelor of Science in Architecture. There was no option in architectural engineering and no graduate year was added to the professional curriculum.

<sup>67</sup>Thomas Larrick, Unpublished Master's thesis, University of Kansas, p. 73.



E. T. Huddleston, the supervising architect for the University, has been head of the department since its inception, and Arnold Perreton has been chief instructor in design since his appointment in 1930.

Conditions surrounding the department at the University of New Hampshire are representative of the class of small schools located in and drawing most of their students from districts removed from great centers of population. In attempting to provide the type of training which would equip the students for effective service in that community, it has made a distinct contribution. The advanced projects are made very realistic and based upon the typical local needs. The attention of the student is directed toward the possibilities of modern architectural service in the small town rather than toward the already crowded offices of distant cities.

*Howard University.* In 1919, a school of architecture was established at Howard University which is maintained primarily for the colored race. It was a department of the College of Applied Science, the name of which has since been changed to the School of Engineering and Architecture. The degree was Bachelor of Science in Architecture. There has been no option in architectural engineering and no graduate year.

The first head of the department was William Augustus Hazel. He was succeeded in 1922 by Albert Irvin Cassell, who remained two years. In 1924 the present head, Hilyard Robert Robinson, was appointed to the staff. Howard William Mackey has been chief of the design staff since 1936.

The department at Howard University is a small school largely devoted to its special field. It is not a member of the Association of Collegiate Schools of Architecture.

*Princeton University.* A major in architecture leading to the Bachelor of Arts degree in the Department of Art and Archaeology was created at Princeton University in 1915. The complete professional curriculum was established in 1920. It was six years in duration. After completion of the four-year major in architecture in the undergraduate fine arts division, two additional years were normally required to obtain the professional degree of Master of Fine Arts. This graduate professional course was organized as an independent school of architecture which became a division of the Graduate School of the university.

Sherley W. Morgan was the instructor in architectural design in the early department. E. Raymond Bossange, who had previously been head of the school at Carnegie Institute of Technology, was director of the School of Architecture from 1923 to 1926 when he resigned to head the newly organized department at New York University. Morgan then became Administrative Secretary and, since 1928, director of the school at Princeton University. Jean Labatut, an École Grand Prix de Rome man, was appointed critic in design in the same year.

As in the case of Columbia University and the University of Cali-



fornia, the six-year curriculum resulted in two years of academic work and four years of work in architecture. This made possible a professional program that was free from the usual schedule conflicts with academic courses. It was adjusted throughout, including the construction courses taken in the engineering division, to the ebb and flow of effort inseparable from the Beaux-Arts methods in design. Class work was concentrated upon during the beginning or "thought" stage of the design projects, and it was eliminated during the time-consuming "presentation" stage. This has become known as the Princeton system.<sup>68</sup>

Enrollment in the school as a graduate division was limited to twenty students, admission being granted only to those demonstrating ability during the undergraduate major to profit by the opportunities offered for advanced professional study. As in the Harvard University graduate program, promotion was made by accomplishment rather than a fixed period of study.

The school at Princeton University was always closely related to the division of art and archaeology. This provided an important early contact for the architecture students with academic scholarship in the field of the fine arts.

*Pennsylvania State College.* A professional course in architectural engineering has been maintained at Pennsylvania State College as one of the departments of the School of Engineering since 1890. It was not, however, until 1921 that a curriculum in architecture was added. The first year remained for several years in common with engineering, and emphasis continued to be placed upon construction projects. The degree was Bachelor of Science in Architecture. A fifth year leading to the degree of Master of Science in Architecture was also added when the curriculum was established in 1921.

Alfred Lawrence Kocher, later to become managing editor of the *Architectural Record*, was head of the department from 1911 to 1927. Clinton L. Harris, who had been a member of the staff since 1918, succeeded Kocher. Lewis F. Pilcher was appointed Professor of Architecture after his resignation at the University of Pennsylvania in 1930, and he is now in charge of architecture, while Harris is head of the architectural engineering division. Frederick C. Disque, another member of the early staff of the school when it was limited to architectural engineering, was chief instructor in design until he was succeeded in 1926 by Percy Ash, who had been head of the school at George Washington University.

The department at Pennsylvania State College was admitted to the Association of Collegiate Schools of Architecture in 1925.

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<sup>68</sup>Sherley W. Morgan, "Teaching Architecture at Princeton," *Minutes of the Sixteenth Annual Convention of the Association of Collegiate Schools of Architecture*, Washington, D. C., April 22 and 23, 1929, p. 10.



*Cleveland School of Architecture of Western Reserve University.* A professional course in architecture was established in 1921 at the Cleveland School of Art, and financed for three years by the Cleveland Chapter of the American Institute of Architects. In 1924 it was incorporated as the Cleveland School of Architecture, an educational institution not for profit, under the laws of the state of Ohio; and in 1929 it became affiliated with Western Reserve University. The degrees offered after 1929 were Bachelor of Architecture and the graduate degree of Master of Arts with a major in architecture. By provision of the charter, the trustees of the school must include three representatives from the Cleveland Chapter of the American Institute of Architects, thus assuring continued interest of the practicing profession.

Francis R. Bacon, the present dean of the school, was appointed at the time of its affiliation with Western Reserve University in 1929.

The Cleveland School of Architecture has the unique distinction of being organized and at first maintained by the profession independent of an academic institution. The history of the school is one of cooperation with the artistic, academic, and technical resources of the city of Cleveland.<sup>69</sup>

*University of Cincinnati.* Herman Schneider, Dean of the College of Engineering, founded the Cooperative System at the University of Cincinnati in 1906. Schneider had taken his first degree in architecture, and he had never lost his interest in that subject. In 1922 he established a department of architecture as a branch of the then College of Engineering and Commerce. The new department was immediately placed upon the same cooperative basis as that which, through Schneider's efforts, had proved successful in the field of engineering education.

The department of architecture expanded in 1925 into the School of Applied Arts of the College of Engineering and Commerce with Schneider as its director. The school comprised in addition to the department of architecture, art-in-industry, interior decoration, landscape architecture, and ceramics. Schneider continues as director of the School of Applied Arts. In 1926 Ernest Pickering was appointed to the staff as Professor of Architectural Design which position he still holds.

The degree in architecture was Bachelor of Science in Architecture. After 1927 an opportunity was offered for graduate work leading to the degree of Master of Science in Architecture.

The major departure at the University of Cincinnati from the usual methods in architectural education is the use of the Cooperative System. Here the students receive in a five-year curriculum, with an eleven-month program each year, approximately the same amount of theoretical training as is provided in the typical four-year course in architecture.

<sup>69</sup>The Cleveland School of Architecture, *Bulletin of Western Reserve University*, 1935, p. 29.

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In addition to this, practical training is provided in the construction of buildings and in office procedures.<sup>70</sup>

*University of Idaho.* A four-year course in architecture was established at the University of Idaho in 1924 under the direction of Rudolph Weaver who had come to the university in 1923 as University Architect. The following year he resigned and went to the University of Florida to head a new department of architecture there.

David Christaff Lange succeeded Weaver in 1926 as head of the department at the University of Idaho and also as University Architect. Theodore J. Prichard, the present head of the school, was also added to the staff in that year, and he succeeded Lange in 1929 when the latter resigned.

The school is a department of the College of Liberal Arts in the departmental division of Art and Architecture. All but one of the construction subjects are given by the College of Engineering. The four-year course in architecture ranks as a major in architecture. There is no fixed curriculum and no regular graduate program in architecture. It is a small school situated in a thinly populated area of the country. There were twenty-one students in 1930 and only fourteen in 1935. The department is not a member of the Association of Collegiate Schools of Architecture.

### SUMMARY DATA ON STATUS OF SCHOOLS OF ARCHITECTURE IN 1912

The summary is made at the mid-point of the period because, as noted previously, this date marks the culmination in the development of the educational processes of Beaux-Arts-Eclecticism under the leadership of the individual schools and the beginning of the period of domination of the standardized program of the Association of Collegiate Schools of Architecture.

*Increase in number of schools of architecture.* At the close of the Eclectic Period there were forty schools providing complete professional courses in architecture. Previous to 1912, however, there were only twenty schools of architecture maintaining complete four-year professional courses. In addition to this several institutions offered short courses for draftsmen and general students, and others offered only architectural engineering, as for example, the University of Kansas and Pennsylvania State College. The United States Commission of Education in its report of 1912 listed thirty-two institutions maintaining some form of courses in architecture.<sup>71</sup> As was explained in the introduction

<sup>70</sup>Herman Schneider, *New Cooperative Courses in Architecture and the Applied Fine Arts at the University of Cincinnati* (Reprint from the *American Architect* and the *Architectural Review*, January 16, 1924), p. 4.

<sup>71</sup>"United States Commission of Education Report of June 30, 1912," *Proceedings of the Forty-seventh Annual Convention of the American Institute of Architects*, Vol. XLVII, 1913, p. 26.



to this study, the architecture content of these special and engineering courses was very limited, and they are not included in the list of professional collegiate schools of architecture.

Eight additional schools, about equally distributed over the country, were established during the pre-World War period after 1912. They were then too recently organized to affect the character of the education of the time, but it should be noted that during the twenty years from 1895 to 1915 twenty-one new schools were established, more than an average of one each year. Also, all but two of them were located west of the Allegheny Mountains where previously there had existed but one school at the University of Illinois. This rapid increase in number of schools continued at about the same rate during the reconstruction period after the war, as noted in Chapter IV.

*Increase in enrollment.* The enrollment varied from nine in the two smallest schools to 216 in the largest, the University of Pennsylvania (Table III). The average was seventy-two students as compared with forty-three students in 1898. The total enrollment was 1,450 as compared with 384 in 1898 (Tables I and III, pages 63, 136 and 137), an increase of 278 per cent in the fourteen years. This large increase in the number of architecture students as well as the increase in the number of institutions offering instruction in the subject demonstrates the effect upon education of Neo-Classicism and Eclecticism.

*The three groups of schools.* The schools established previous to 1912 may be divided into three rather definite groups corresponding in general to the districts in which they were located:

1. The Eastern Group

- Massachusetts Institute of Technology
- Cornell University
- Syracuse University
- Columbia University
- University of Pennsylvania
- George Washington University, Washington, D. C.
- Harvard University
- Washington University, St. Louis
- University of California
- Carnegie Institute of Technology
- Catholic University

2. The Middle Western Group

- University of Illinois
- Armour Institute of Technology
- University of Notre Dame
- Ohio State University
- University of Michigan

TABLE III  
GENERAL DATA ON THE SCHOOLS OF ARCHITECTURE IN AMERICA  
AT THE CLOSE OF THE YEAR 1911-1912\*

| <i>School</i>             | <i>Date of<br/>estab-<br/>lishment</i> | <i>Enroll-<br/>ment</i> | <i>Internal<br/>connection</i>         | <i>Bacca-<br/>laureate</i> | <i>Graduate<br/>year</i> | <i>Graduate<br/>degree</i> | <i>Two-year<br/>special<br/>course</i> | <i>Architectural<br/>engineering</i> |
|---------------------------|--|-------------------------|--|----------------------------|--------------------------|----------------------------|--|--------------------------------------|
| 1. M. I. T. ....          | 1865                                   | 80                      | Department<br>Engineering              | B.S. in<br>Arch.           | yes                      | M.S. in<br>Arch.           | no                                     | Four-year<br>course                  |
| 2. Cornell U. ....        | 1871                                   | 123                     | College                                | B. Arch.                   | yes                      | M.Arch.                    | yes                                    | Four-year<br>course                  |
| 3. U. of Illinois.....    | 1873                                   | 203                     | Department<br>Engineering              | B.S. in<br>Arch.           | yes                      | M.Arch.                    | no                                     | Four-year<br>course                  |
| 4. Syracuse U. ....       | 1873                                   | 53                      | Department<br>Fine Arts                | B. Arch.                   | no                       |                            | yes                                    | no                                   |
| 5. Columbia ....          | 1881                                   | 113                     | School                                 | B. Arch.                   | yes                      | M.A.                       | no                                     | no                                   |
| 6. U. of Penn. ....       | 1890                                   | 216                     | Department<br>Engineering              | B.S. in<br>Arch.           | yes                      | M.S. in<br>Arch.           | yes                                    | Option 4th<br>year                   |
| 7. George Washington U... | 1893                                   | 9                       | Department<br>Engineering <sup>a</sup> | B.S. in<br>Arch.           | yes                      | M.S. in<br>Arch.           | no                                     | no                                   |
| 8. Armour Inst. ....      | 1895                                   | 98                      | Department<br>Fine Arts                | B.S. in<br>Arch.           | no                       |                            | no                                     | no                                   |
| 9. Harvard U. ....        | 1895                                   | 36                      | School                                 |                            | Graduate<br>school       | M.Arch.                    | yes                                    | no                                   |
| 10. U. Notre Dame.....    | 1898                                   | 25                      | College <sup>d</sup>                   | B.S. in<br>Arch.           | yes                      | M.S. in<br>Arch.           |  | Four-year<br>course                  |
| 11. Ohio State U. ....    | 1899                                   | 39                      | Department<br>Engineering              | B. Arch.                   | yes                      | M.Arch.                    | no                                     | Four-year<br>course <sup>1</sup>     |



|                                   |      |       |                        |                            |     |                            |     |                         |
|-----------------------------------|------|-------|------------------------|----------------------------|-----|----------------------------|-----|-------------------------|
| 12. Washington U. ....            | 1904 | 44    | School                 | B.S. in Arch.              | yes | M.S. in Arch. <sup>2</sup> | no  | Option 3rd and 4th year |
| 13. U. of Calif. ....             | 1904 | 50    | School                 | B.S. in Arch. <sup>6</sup> | yes | M.S. in Arch. <sup>6</sup> | no  | no                      |
| 14. Carnegie Inst. ....           | 1905 | 97    | Department Fine Arts   | A.B. in Arch.              | no  | M.A. in Arch. <sup>7</sup> | no  | Option 3rd and 4th year |
| 15. U. of Michigan.....           | 1906 | 123   | Department Engineering | B. Arch.                   | yes | M.S. in Arch.              | yes | Four-year course        |
| 16. Alabama Poly. ....            | 1907 | 22    | Department Engineering | B.S. in Arch.              | no  |                            | no  | no                      |
| 17. Georgia Tech. ....            | 1908 | 42    | Department Engineering | B.S. in Arch.              | no  |                            | yes | no                      |
| 18. Tulane U. ....                | 1908 | 12    | Department Engineering | B. Arch.                   | no  |                            | no  | Four-year course        |
| 19. U. of Texas ....              | 1909 | 56    | Department Engineering | B.S. in Arch.              | yes | M.S. in Arch.              | no  | Option 4th year         |
| 20. Catholic U. ....              | 1911 | 9     | Department Engineering | B.S. in Arch.              | no  |                            | yes | no                      |
| <hr/>                             |      |       |                        |                            |     |                            |     |                         |
| Total enrollment .....            |      | 1,450 |                        |                            |     |                            |     |                         |
| Average enrollment per school.... |      | 72    |                        |                            |     |                            |     |                         |
| <hr/>                             |      |       |                        |                            |     |                            |     |                         |

NOTE: The data given in this table are as accurate as possible with existing records. For the purposes of this study it may be considered as correct.

\**Bulletins and records* of the individual schools of architecture for the year 1911-1912.

<sup>1</sup>After 1916.

<sup>2</sup>After 1914.

<sup>3</sup>After 1913.

<sup>4</sup>Department of Engineering after 1919.

<sup>5</sup>A.B. after 1915.

<sup>6</sup>Graduate in Architecture at the end of a sixth year.

<sup>7</sup>After 1915.

### 3. The Southern Group

Alabama Polytechnic Institute  
Georgia School of Technology  
Tulane University  
University of Texas

The Eastern and largest group represents the older and more thoroughly established institutions. They are to be distinguished by the great emphasis which they gave during this period to the principles and methods of the *École des Beaux-Arts*. Washington University and the University of California must be included because their early leaders were definitely Eastern in viewpoint and students of the *École*, and the character of their entire program was similar to that of the Eastern group of schools.

The newer Middle Western group tended to follow the University of Illinois tradition with more emphasis upon western construction and less stress upon *Beaux-Arts* ideals. These schools, or departments, were more closely allied to their respective engineering divisions.

The Southern Group represents in general the then most recently established schools. They were also closely allied with engineering, but they tended to follow the earlier traditions of the Massachusetts Institute of Technology and Columbia University rather than the later extreme *Beaux-Arts* methods. They were to a certain extent products of the Southern states.

*Status of the schools in the college organization.* Five schools were independent schools or colleges within their university organizations (Table III). Notre Dame was also a college in 1912, but it later became a department of the engineering division. Two were departments of the fine arts divisions, while one, Armour Institute, was a department of both fine arts and engineering; and twelve were departments under engineering. The Washington University department, although nominally independent, was also controlled by the dean of engineering.

This summary establishes certain significant facts. First, the majority of schools still lacked the independence within the college organization enjoyed by the schools of other major professions. Doubtless the relatively small size of the architecture divisions, as well as the traditional lack of confidence shown by executives toward instructors in the "mysterious art" of architecture largely accounts for this situation.

Second, two-thirds of the schools continued to be departments of engineering divisions or of technical colleges which were essentially engineering schools. These figures point to the continued struggle of architectural schools for freedom from the hindering connections with engineering which have characterized American architectural education from the earliest period.

Third, the conviction among many educators that architecture should be considered as primarily a fine art and that it can best be taught in



connection with the fine arts divisions had brought about results in three institutions (Table III).

*Entrance requirements.* As previously noted, Harvard required college graduation for entrance to its school of architecture; and California held the same requirement, on paper at least, the pre-architecture course being the four-year Liberal Arts course with architecture as a major during the last two years. Columbia required two years of Liberal Arts work for entrance.

Fourteen schools limited the entrance requirement either to graduation from high school or to entrance examinations in high school subjects. The three remaining schools varied from this general rule. Massachusetts Institute of Technology required the examination in high school subjects and specified nothing regarding graduation from high school. Carnegie Institute and Pennsylvania required both graduation and an examination, the former specifying, in addition, a personal interview. Fifteen high school units was the general requirement although two of the schools, Washington University and Georgia School of Technology, specified only ten high school units. The standard minima of the Association of Collegiate Schools of Architecture specified a minimum of fourteen high school units.

There was much variation regarding requirements. The heaviest subject requirements were maintained at Carnegie Institute of Technology. The subjects usually specified by most of the schools were as follows:<sup>72</sup>

English—three years  
Mathematics (algebra, geometry and in some cases trigonometry)—three years  
Science—one to two years  
General history—one to two years  
Foreign language (including Latin)—two to three years

The Association standard minima, after 1914, recommended the following:

English—three years  
Algebra—one and one-half years  
Geometry—one and one-half years  
Physics—one year  
History—one year  
Foreign language—two years

An entrance requirement in drawing was mentioned in only eight of the seventeen schools accepting students directly from the high school. This varied from one-half year to three years. It was always limited to general instrumental and free-hand drawing.

In no school were there any rigid entrance requirements in architectural subjects as was the case at the École des Beaux-Arts. The schools

<sup>72</sup>*Bulletins* of the schools for the year 1911-12.



were compelled to deal with the student material supplied by the preparatory schools, and the American high schools were not equipped to give preliminary training in architecture. Very few of the entering students knew how to draw or had any conception of the character of the field they were attempting to enter. This factor had an important bearing upon architectural education, especially in the lower division years. It necessitated a far more elementary approach to the professional subjects than was maintained in European schools and also resulted in the unusually heavy mortality in the lower division which has been typical of the architecture departments.

Educators were aware of the effect produced by this condition. In 1915 Carnegie Institute of Technology made the general recommendation that there be added an entrance recommendation of some preliminary training in architectural drawing and design in addition to high school graduation.<sup>73</sup> Hamlin at Columbia University, with its additional preparatory work of two college years, complained as follows:

If we could order his [the student's] two years of required collegiate pre-architecture study as we would like to, he would come to his four years of professional study after two years of combined collegiate and elementary architecture training.<sup>74</sup>

All American schools of architecture were, however, integral parts of larger institutions and they were, for the most part, subject to the general academic regulations regarding entrance.

*Schools having the first year in common with engineering.* Three schools, Ohio State, Michigan and Alabama, offered a common first-year course with all engineering branches. This limited the major subject of design to three years. At the Massachusetts Institute of Technology also, the first year was in common with architectural engineering, but was different from that of the other engineering courses. This condition in general is merely indicative of the continued struggle in some of the schools to free the architecture curriculum from the powerful engineering divisions from which they had had their origin.

*The rigid curriculum.* Fifteen schools provided a fixed curriculum.<sup>75</sup> Pennsylvania also had a suggested curriculum for the guidance of the students. All of the schools specified required subjects in architecture. Five, however, Columbia, Pennsylvania, Harvard, California, and Michigan, provided no rigid outline of required courses and promotion in the major subject of design was flexible and governed generally by the student's achievement.

<sup>73</sup>*Proceedings* of the Forty-ninth Annual Convention, American Institute of Architects, Vol. XLIX, 1915, Appendix E, p. 110.

<sup>74</sup>A. D. F. Hamlin, "Architectural Education, A Teacher's View," *American Architect*, 121:211, March 15, 1922.

<sup>75</sup>*Bulletins* of the schools for the year 1911-12.



*Baccalaureate degrees.* The degree of Bachelor of Architecture was offered at six of the twenty schools while the degree of Bachelor of Science in Architecture was offered at twelve schools. Harvard, as a graduate school, gave only the degree of Master of Architecture and at Carnegie Institute the degree was A.B. (Table III).

*The graduate year.* Thirteen of the twenty schools of architecture regularly offered graduate work leading to a graduate degree (Table III). This number includes Harvard University which was entirely a graduate school offering only the Master's degree. With the exception of Harvard, the graduate course consisted of one year of study leading, in the case of eight schools, to the degree of Master of Science in Architecture and in four to the degree of Master of Architecture. At Columbia the graduate degree was then Master of Arts. Although Michigan is included in the group offering Master of Science in Architecture, it also offered a sixth-year course leading to the degree of Architect. At California the degree for the sixth year was Graduate in Architecture. Minnesota later gave the graduate degree of Architect for the fifth year.

The graduate year in architecture, wherever offered, emphasized design. In other branches there was little uniformity of requirements. Advanced drawing and some form of advanced study in construction was usually required. In many cases certain cultural courses in other departments were included. A course in graduate history of architecture was given at Columbia University called "Graduate Essays" and a good graduate course in Italian Renaissance architecture was given at Pennsylvania. Massachusetts Institute of Technology and Cornell also offered opportunities for advanced instruction in this subject. The library reference collection in most schools, however, was not of sufficient size to permit of much research in any period, and little opportunity was offered for study in history of architecture beyond the regular undergraduate course.

In the major professional courses, the graduate year must be considered as essentially an extended period of undergraduate study. The field which architectural educators attempted to include was broad and many-sided and there was a continual demand for the lengthening of the four-year program. As early as 1902, the Committee on Education of the American Institute of Architects noted that there was a tendency for all schools to develop graduate courses for the purpose of extending their programs through a fifth year.<sup>76</sup> After the four-year period, with its unrelated requirements, had been completed the student benefited greatly by a year which was relatively free for concentrated professional study. Also graduates from the less thoroughly established schools often realized the value of an additional year under some well-known in-

<sup>76</sup>Report of the Committee on Education," *Proceedings* of the Thirty-sixth Annual Convention of the American Institute of Architects, December 11, 12 and 13, 1902, p. 74.



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structor at a recognized institution, whether or not it was postgraduate in character.

*List of traveling scholarships available to students of architecture in the United States.* As a product, for the greater part, of the philosophy of Beaux-Arts Eclecticism, traveling scholarships and prizes open to advanced students and graduates in architecture increased throughout the Eclectic Period. In 1930, according to a list compiled by the Committee on Education of the American Institute of Architects, there were thirty-eight scholarships regularly providing for travel and study in Europe. These scholarships constituted a very important element in the architectural education of the time.

1. Society of Beaux-Arts Architects, PARIS PRIZE, 1, for 2½ years, \$3,600.
2. American Academy in Rome, FELLOWSHIPS IN ARCHITECTURE, 3, for 3 years, at \$1,300 each annually.
3. American School at Athens, FELLOWSHIP IN ARCHITECTURE.
4. University of Pennsylvania, WOODMAN TRAVELING FELLOWSHIP, awarded annually to students of the University, on scholastic standing, and usually, though not necessarily, to those holding Master's degree. \$1,000.
5. Harvard University, NELSON ROBINSON JR. TRAVELING FELLOWSHIP IN ARCHITECTURE, to Masters in Architecture of Harvard, \$2,200, for 18 months' travel and study in Europe. (Awarded every other year, that is, alternating with Appleton Fellowship.)
6. Harvard University, JULIA AMORY APPLETON TRAVELING FELLOWSHIP IN ARCHITECTURE, to Masters in Architecture of Harvard, \$2,200, for 18 months' travel and study in Europe. (Awarded every other year, that is, alternating with Nelson Robinson Jr. Fellowship.)
7. Harvard University, FREDERICK SHELDON FUND FOR TRAVELING FELLOWSHIPS AND SCHOLARSHIPS, to holders of degree from Harvard, for purposes of study or investigation in this country (outside of Harvard) or abroad; open to students of all departments including the architectural. Covers living expense requirements, and the like; amount indeterminate.
8. Harvard University, UNIVERSITY SCHOLARSHIPS (ARCHITECTURE AND LANDSCAPE ARCHITECTURE), Traveling Scholarships, eight, ranging from \$1,000 to \$2,000.
9. Yale University, ALICE KIMBALL ENGLISH FELLOWSHIP, open to students of architecture, painting and sculpture; awarded annually for 8 months' travel and study abroad, \$1,250.
10. Yale University, WM. WIRT WINCHESTER FELLOWSHIP, open to students of architecture, painting and sculpture; awarded annually for 8 months' travel and study abroad, \$1,000.
11. Yale University, CHARLES ARTHUR AND MARGARET ORMROD MATCHAM TRAVELING FELLOWSHIP, awarded annually for 8 months' travel and study abroad, \$1,000.
12. Massachusetts Institute of Technology, NESHOUSE SCHOLARSHIP, 6 months, for students taking Bachelor's degree, \$1,000.
13. Massachusetts Institute of Technology, TRAVELING FELLOWSHIP, 1 year, for post-graduate students, \$1,500.
14. Massachusetts Institute of Technology, FONTAINEBLEAU SCHOLARSHIPS, 2, for undergraduates to spend summer at school in Fontainebleau, each \$500.



- |  |   |
|--|---|
| 15. Columbia University, McKIM TRAVELING FELLOWSHIP    | } Stipends<br>varying<br>from<br>\$1,800<br>to<br>\$2,400 |
| 16. Columbia University, PERKINS AND BORING FELLOWSHIP |   |
| 17. Columbia University, COLUMBIA TRAVELING FELLOWSHIP |   |
18. University of Michigan, GEORGE G. BOOTH TRAVELING FELLOWSHIP IN ARCHITECTURE, awarded by competition, to graduate or one about to graduate; for travel abroad, \$1,200.
  19. University of Illinois, FRANCIS J. PLYM FELLOWSHIP IN ARCHITECTURE, to graduates of Department of Architecture, for 1 year's study in Europe, \$1,200.
  20. University of Illinois, PLYM FOREIGN SCHOLARSHIP IN ARCHITECTURAL ENGINEERING, to graduates of Department of Architecture, for 6 months' study abroad covering architecture and engineering, \$700.
  21. University of Illinois, KATE NEAL KINLEY MEMORIAL FELLOWSHIP, University of Illinois, and other institutions of equal standing, for advanced study in America or abroad, in music, art or architecture, \$1,000 toward one year's expenses.
  22. Cornell University, TRAVELING SCHOLARSHIP (a special gift made occasionally, and not a regular scholarship).
  23. Washington University (St. Louis, Missouri), JAS. HARRISON STEEDMAN FELLOWSHIP IN ARCHITECTURE; candidates must have 1 year's experience in office of a St. Louis architect; annual award \$1,500, for a year's travel and study abroad.
  24. Foundation for Architecture and Landscape Architecture, EDWARD L. RYERSON TRAVELING FELLOWSHIPS, to an architect and a landscape architect, of the group from the five Mid-Western schools who have attended the summer course on scholarships, for travel and study together abroad, each \$1,500.
  25. Princeton University, THESIS PRIZE, awarded to best thesis, annually; toward expenses of European tour for architectural study, \$500.
  26. University of Kansas, DON L. EWART TRAVELING SCHOLARSHIP, for short summer trip (first time 1930), annual \$200.
  27. University of Washington (Seattle), FONTAINEBLEAU TRAVELING SCHOLARSHIPS, not endowed, but accumulated from popular subscription of interested local citizens; awarded each year for past five years, one or several ranging from \$500 to \$1,000; reasonably sure of one a year.
  28. Wm. M. Rice Institute, TRAVELING SCHOLARSHIP, open to graduates of fifth year and to those holding Bachelor of Science in Architecture, for 8 months' study and travel abroad, \$1,200.
  29. Western Reserve University, Cleveland School of Architecture, CLEVELAND-FONTAINEBLEAU SCHOLARSHIP, for 3 months' summer course at Fontainebleau School of Fine Arts; required, promise of student to return for one year at Cleveland School of Architecture after the Fontainebleau course; open to Juniors and Seniors; \$500.
  30. University of California, JOHN GALEN HOWARD MEMORIAL FELLOWSHIP, traveling scholarship in Europe.
  31. ROTCH TRAVELING SCHOLARSHIP.
  32. LEBRUN TRAVELING SCHOLASHIP, open to citizens of the United States between 23-30 years of age, not recipients of any other traveling scholarship; required, experience as architect or draftsman; six months abroad, \$1,400 annually.



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33. GUY LOWELL MEMORIAL SCHOLARSHIP, awarded by competition, to draftsmen and men who have studied in offices, for six months' travel and study abroad, \$1,000.
34. A. W. BROWN TRAVELING SCHOLARSHIP, awarded by competition, for at least one year's study in Europe, \$2,000. (Lesser money prizes to those placed second, third and fourth in judgment.)
35. WHITNEY WARREN FONTAINEBLEAU SCHOLARSHIPS, awarded each year with current problem, Beaux-Arts Institute of Design, 2, at \$500.
36. JOHN STEWARDSON MEMORIAL FELLOWSHIP IN ARCHITECTURE, open to students of architecture, resident one year prior to competition date in State of Pennsylvania; awarded by competition; for foreign travel, \$1,000.
37. TRAVEL SCHOLARSHIP, annual award of the Chicago Architectural Sketch Club.
38. JAMES TEMPLETON KELLEY FELLOWSHIP IN ARCHITECTURE, open to man or woman resident of Maine, New Hampshire, Vermont or Massachusetts, whether student, teacher, draftsman or practicing architect; under administration of Boston Society of Architects; for one year's study and travel abroad, annually \$2,500.<sup>17</sup>

*The short special course.* The special course with a definite two-year program was arranged primarily for draftsmen and, as noted in the previous chapter, with the growing acceptance of the complete professional program as a preparation for the practice of architecture, there was a tendency to abandon it. By 1912 only seven of the twenty schools offered a special course (Table III). These were all two-year programs.

The special course at the University of Pennsylvania continued to be the most important. The fame of Pennsylvania during the years before the war attracted draftsmen from all parts of the country. Here they availed themselves of the short professional course which provided an opportunity to study with excellent instructors without the prolonged academic requirements of the regular four-year course.

*The option in architectural engineering.* Only eight of the schools did not offer an option in architectural engineering (Table III). Six schools provided a complete four-year course and in 1916, a seventh, Ohio State University, added a four-year curriculum. Two schools offered a two-year structural option after the second year in architecture, and three offered a fourth-year structural option.

There was little agreement among the schools regarding the relative amount of construction and architectural design required in the architectural engineering curriculum. All schools included some study of design in this option. Also the study of construction was included in the regular architecture curriculum in every school, so that the number of

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<sup>17</sup>Compiled from data obtained by questionnaire and completed April 10, 1930, by C. C. Zantzinger, Committee on Education, American Institute of Architects, Washington, D. C.



years allotted to the engineering option did not signify the total requirement in either theoretical or applied structural engineering.

The rapid development of the science of construction and building equipment brought about the need for an engineer thoroughly trained in his profession and having at the same time sufficient knowledge of architecture to enable him to work sympathetically in association with the architect. This new professional field, as noted above, produced the demand for specialized training which resulted in the creation of the engineering option in so many of the schools of architecture.

A condition arising within the schools ought also to be noted. With the strong emphasis upon competitive design during this period, the engineering option offered an opportunity for the students who were weak in design. A large proportion of these architectural engineering graduates, however, found their way into the general practice of architecture. This was especially true where the option was limited to the advanced years of the curriculum. In those schools possessing well-organized four-year programs with definitely planned objectives, as for example, the Massachusetts Institute of Technology and the University of Illinois, this very questionable condition was much less prevalent. Such complete courses in architectural engineering filled a real professional need during the period of Eclecticism.

#### THE ASSOCIATION OF COLLEGIATE SCHOOLS OF ARCHITECTURE

*Brief history of the organization.* At the Forty-sixth Annual Convention of the American Institute of Architects, held in Washington, D. C., in December 1912, there were present professors from eight universities maintaining departments for professional instruction in architecture. As a result of an informal discussion on educational problems among these men, a proposal was made to form an organization, later to be known as the Association of Collegiate Schools of Architecture. The proposal met with such immediate favor that officers were elected and a meeting scheduled for the following year. Warren Powers Laird of the University of Pennsylvania was elected president; Emil Lorch of the University of Michigan, vice-president; and Clarence A. Martin of Cornell, secretary-treasurer. Laird held the chair as president of the Association from its founding until 1921.

The following year, December 27, 1913, the second annual meeting was held at Columbia University in New York. At that time the articles of organization were adopted. The purpose of the organization as stated was "to promote the efficiency of architectural education in America."<sup>78</sup> The membership of the Association was to be "composed of schools or departments of architecture in institutions of collegiate rank

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<sup>78</sup>*Minutes of the First Meeting of Representatives of American Architectural Schools, Washington, D. C., December 19, 1912, p. 2.*



offering courses in architecture approved by the Association." While it was determined that the meetings be open, each member school was allowed but one voting representative, who was to be the head of the school or his substitute. The following were made charter members of the Association:

- Carnegie Institute of Technology
- Columbia University
- Cornell University
- Harvard University
- Massachusetts Institute of Technology
- University of California
- University of Illinois
- University of Michigan
- University of Pennsylvania
- Washington University

Some constructive activity of a general nature had been carried on by the Committee on Education of the American Institute of Architects. This work, however, was very limited; since the membership of the organization was made up largely of architects who were not closely associated with the academic life of the schools, the province of the Committee was usually understood to be advisory only from the standpoint of the requirements of professional practice. It was only through an agency such as this association that the many problems to be met by the schools could be set forth and discussed by leaders in education. Close cooperation, however, with the American Institute of Architects was maintained from the first through its educational committee. At the first meeting of the Association the secretary was instructed to inform the American Institute of Architects of the new organization and to express their desire for cooperation. The annual meetings have always been held in conjunction with the conventions of the Institute.

The opportunity afforded by the Association for mutual assistance in the cause of architectural education over the country was recognized with enthusiasm. A supplementary note was added to the minutes of the second meeting which expressed the "comments and apparent unanimity of sentiment relative to the great value of the meetings in suggestions, helpfulness, and inspiration." As the non-member schools were able to meet the standards of admission, they were gradually accepted by the Association until in 1923 the membership totaled seventeen, and in 1928, twenty-five. At the annual meetings there were many representatives from the non-member schools who were encouraged to take an active part in the discussions. From year to year the problems confronting educators were submitted for discussion and the sentiment of the representatives expressed. Thus the Association became identified with nearly every aspect of the development and maintenance of standards in architectural education in America after 1912.



*The Association as a culmination of the period of Eclecticism.* Since the founding of the Association occurred just at the time when architectural education of the period of Eclecticism was fully developed, the organization must be thought of as an aspect of the climax and as a standardization agent rather than as a primal factor in the movement. In 1912 the well-established schools had reached, at least in general theory, what was believed to be the best education for the practice of architecture at that time, and they experienced little difficulty in agreeing upon a standard curriculum which would form the major basis for the approval of the profession and the admission of other schools to the Association.

*The standard minima.* From the first annual meeting in 1912 the question of a definite standard for the guidance of the Executive Committee was considered. Martin was instructed to secure information concerning standards and courses in other schools than those included in the charter membership, and in 1913 he reported with a tabulation that included twenty-five member and non-member schools. This study culminated in 1914 in the adoption of the "standard minima" for a four-year curriculum in architecture. It was slightly revised and strengthened in 1916 and again in 1924. The following is a copy of the document as it was published by the Association in 1924, omitting the small section which referred only to architectural engineering.

*Definition of a professional course in architecture.*

The Standard of Minimum requirements for a course in Architecture, as defined by the Executive Committee for its guidance in reporting to the Association on applications for admission to membership, adopted at the annual meeting of 1914, revised at the annual meeting December 5, 1916, and adopted as here further revised at the annual meeting May 19 and 20, 1924.

The course considered herein is the normal one of four years duration, in which provision is made for general and professional education. Courses extending over a longer period, combination and graduate courses, should easily fulfill and exceed the proposed requirements.

*Standing of institution.*

1. This is to be of "collegiate rank" as defined by the Carnegie Foundation for the Advancement of Teaching.
2. Entrance. The standard of admission to the course in architecture must not be less than fourteen (14) standard high school units. The following are desirable:

|  | <i>Units</i> |
|--|--------------|
| English .....                              | 3            |
| Algebra through Quadratics .....           | 1½           |
| Geometry (Plane, Solid or Spherical) ..... | 1½           |
| Physics .....                              | 1            |
| History .....                              | 1            |
| One foreign language .....                 | 2            |
| Other subjects specified or elective ..... | 4            |
|  | <hr/> 14     |

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3. In the college course a course in general chemistry is recommended if not offered for admission.

*General nature of course and length of time established.* The curriculum should show a satisfactory scheme of instruction, the success of which has been demonstrated over a period of four years.

*General requirement.* A course should cover not less than 120 credit hours, one credit hour being three hours of actual time (one hour of lecture or recitation and attendant preparation, or three hours of drawing or laboratory work) per week for one semester of fifteen weeks. Thus each credit hour is equivalent to forty-five actual hours and the four-year course of 120 credit hours should cover 5,400 actual hours.

*Detailed requirements.* The table below shows the minimum requirements in each division of work.

General or academic subjects are in addition to subjects required for admission (specified under "2"). If they are also offered for entrance, substitution of cultural or technical electives might be made, the cultural substitutes to be preferred.

In the professional or technical subjects not less than the credit hours shown must be provided in the subjects named.

### *Minimum requirements.*

| <i>Subject</i>                                  | <i>Credit hours</i> | <i>Actual hours</i> |
|---|---------------------|---------------------|
| 1. General or academic subjects:                |                     |                     |
| English .....                                   | 4                   | 180                 |
| Foreign language .....                          | 4                   | 180                 |
| Mathematics .....                               | 4                   | 180                 |
| Science .....                                   | 4                   | 180                 |
| Additional .....                                | 8                   | 360                 |
| Total "1" .....                                 | 24                  | 1,080               |
| 2. Professional or Technical subjects:          |                     |                     |
| Design .....                                    | 30                  | 1,350               |
| Construction .....                              | 16                  | 720                 |
| History .....                                   | 8                   | 360                 |
| Drawing .....                                   | 16                  | 720                 |
| Additional .....                                | 16                  | 720                 |
| Total "2" .....                                 | 86                  | 3,870               |
| Total "1" and "2" prescribed subjects.....      | 110                 | 4,950               |
| 3. Additional in above or related subjects..... | 10                  | 450                 |
| Grand totals .....                              | 120                 | 5,400               |

### *Detailed statement of the technical requirements.*

1. Architectural Design. This must be taught on the basis of problems requiring a solution, development and presentation by the student under criticism, accompanied by short problems to be carried out with no criticism until after the problems are turned in. As a condition precedent to receiving a degree the student must be able to solve satisfactorily problems of the first class, that is, single buildings or groups of buildings of importance or other problems in composition of equal difficulty.

Under architectural design may be included courses in the theory or elements of design or architecture, taught by means of lectures or drawing. In addition to architectural design as above there may, with advantage, be added courses in allied arts, and decorative, landscape or civic design.



2. Construction. This must comprise theory of stresses, structural design, masonry, carpentry, working drawings, etc.

In this group there may also be included courses in heating and ventilation, fireproofing, specifications, illumination, sanitation, etc.

3. History. This must comprise lectures in the historical development of architecture with research work and drawing, and may also include the history of ornament, painting, sculpture or civilization.

4. Drawing. This must comprise for Table I the following: (1) pure free-hand drawing in various media from objects and nature (12 credit or 540 actual hours) and (2) descriptive geometry, shades and shadows and perspective (4 credit or 180 actual hours). Drawing from life should be included and some instruction in modeling is desirable.

5. Other subjects. Every course should treat of professional practice with especial emphasis upon ethics.

*Equipment.* An adequate equipment is essential since without fair facilities, such as a good library, an adequate collection of lantern slides, casts, etc., the instruction, particularly in design, history and drawing, would suffer. It would therefore be necessary to have information in regard to the equipment of a school which is a candidate for membership.

*Staff and administration.* The character of the staff as to its members, and their professional training and ability, technical equipment and general education, the spirit and nature of the institution and its form of control of the professional school of architecture are vital considerations.

*Degree.* The degree offered should not be less than a baccalaureate degree (B.Arch., B.S. in Arch., etc.).<sup>79</sup>

*Significance of the standard minima.* Following the established practice of the schools of 1912, the standard minima specified for the entrance requirement to a school of architecture were only a minimum of fourteen high school units or what would normally be the requirement of graduation (page 147). The high school subjects were mentioned, but merely as "desirable." A general statement was included regarding adequacy of staff, equipment, and curriculum of a school of architecture as well as general quality of instruction. The section, however, which received the stress was that which definitely specified the credit hours to be required in each subject. Quantitative measures were always emphasized in estimating the quality of a school. The document was thoroughly representative of the crystallization of educational thought in architecture during the mid-Eclectic Period.

The fundamental objective was the raising of the standards in architectural education throughout the country. A very positive goal was thereby established toward which the weaker schools could strive, and the national recognition involved made the Standard Minima a most potent weapon in securing greater support from the university administrations. The strengthening in this manner of the newer schools and those situated in the poorer and more thinly populated districts was doubtless the greatest achievement of the Association during these years.

<sup>79</sup>*Minutes of the Eleventh Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D. C., May 19-20, 1924, Appendix I, pp. 1-4.*



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### CHARACTER OF THE SUBJECTS IN THE ARCHITECTURE CURRICULUM OF 1912

#### A. Design

Design was the subject receiving principal emphasis in schools of architecture. Fourteen of the twenty schools in 1912 required four years of this subject.<sup>80</sup> A minimum total of thirty units of design was specified by the Standard Minima of the Association of Collegiate Schools of Architecture (page 148).

*The French influence.* It was in instruction in design that the influence of the École was most apparent. In twelve of the twenty schools, including all of the older Eastern institutions, the advanced design courses were under the direction of an École graduate. In seven of this number the instructor was French. As a rule these Frenchmen had not been in this country for a sufficient length of time to understand conditions here, and they were not engaged in professional practice. They were also handicapped by the necessity of teaching in a foreign language. Quite naturally, all of them taught as nearly as possible in the French manner.<sup>81</sup> Only five of the twenty schools did not utilize the programs of the Beaux-Arts Institute of Design, at least in a portion of their design curriculum.<sup>82</sup> The modified French atelier system had become universal. The report of the Committee on Education of the American Institute of Architects in 1907 expressed the prevailing attitude toward the atelier system:

We are unanimously of the opinion that this passion for beauty and this instinctive good taste may be inculcated if at all not through methods of scientific pedagogy, but by the close personal relations and the keen enthusiasm that arises through the association of a group of students with a practicing architect chosen by the free will of the student because of admiration for and sympathy with his principles, his personality, and his achievements.<sup>83</sup>

*The esprit de corps of the atelier.* The spirit of the Paris atelier, which had been such an important factor in the success of the École, could not be entirely duplicated in American universities. Students in the schools of this country were younger, less mature, and, therefore, more dependent upon instructors. Also, the background of tradition of the much older school was lacking. It was impossible to build up, to the same degree as had been done in Paris, either the freedom from connections outside the design group or the spirit of cooperation among the atelier members with that near reverence of the *nouveaux* for the

<sup>80</sup>*Bulletins and Records* of the schools for the year 1911-1912.

<sup>81</sup>E. Raymond Bossange, "American Schools of Architecture," *Journal of the American Institute of Architects*, 3:106, March, 1915.

<sup>82</sup>*Records* of the Beaux-Arts Institute of Design, New York City, 1910-1915.

<sup>83</sup>"Report of the Committee on Education," *Proceedings* of the American Institute of Architects, Fortieth Annual Convention, 1907, p. 28.



*anciens*. There still necessarily remained something of the attitude of the university classroom. At times this was deplored by the French-trained designers; yet any lack of true atelier spirit was to be observed only by comparison with the conditions at the French school. The entire American procedure was patterned after that of the École.<sup>84</sup>

This *esprit de corps* of the typical design class as it centered around the personality of the instructor was an important element in architectural education. The fact that the results of all class work were submitted to an impartial jury brought the ideas which the instructor had suggested as much under criticism as those for which the student was actually responsible. This made possible a healthy comradeship between the patron and the members of the atelier. The general routine in these ateliers with the individual method of instruction was characterized by a freedom and lack of academic restraint that was otherwise quite foreign to collegiate education in the United States. The attitude of cooperation among the members of the class was also unique. Often the younger students learned more as they "niggered" for the older students, being in turn aided and advised by them, than would have been possible through any other method. Laloux, the great French architect and patron, once remarked, "In the criticisms of the younger men by the *anciens* lies the strength of my atelier." In the best of the American ateliers there was much the same tendency for the more advanced students to be revered and emulated by the beginners.<sup>85</sup>

*The element of competition.* In the design class all the students worked upon the same problem under identical conditions. The instruction was individual, and all grades and methods of promotion were upon a competitive basis. Even in the cases in which the underlying principles were reviewed in a separate theory of design lecture course, this theory was quite unrelated to the immediate problems of the student as he struggled for his "mention." Toward the end of each project the student's interest in his own solution of the class problem was built up to such an intensity that it overshadowed that of every other phase of his school life. It accounted for the all-night *charettes* and the traditional periodic slighting of all other subjects by the architectural students. A more positive pedagogical instrument could scarcely be devised than this competitive-jury method of the Beaux-Arts system.

*The eclectic theory in the study of design.* The basic philosophy in the subject of design was eclectic with even a stronger tendency to stress classic forms than was the case in the practicing profession. It was held that this disciplinary study was the foundation of all architectural education. From the freshman year the student was drilled in the

<sup>84</sup>*Proceedings of the American Institute of Architects, Forty-seventh Annual Convention, 1913, p. 27.*

<sup>85</sup>Bossange, *op. cit.*, p. 109.

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elements of Greek, Roman and Renaissance architecture, the theory being that this crystallized system of forms and proportions embodied the principles of all design, and that by prolonged contact with them the student developed his sense of good design. Henry Van Brunt said:

I am entirely persuaded that the practice in Classic composition . . . is the most important part of an architect's training in design; and that to attempt design without the ordering and enriching of the faculties of invention which can best be obtained by such practice, is like trying to write a sonnet or an heroic poem without a knowledge of grammar and the elements of rhetoric.<sup>86</sup>

The report of the Committee on Education of the American Institute of Architects in 1894 embodied exactly the same policy.<sup>87</sup>

From the first to the last of the four-year curriculum the student was taught the theory that he must turn to some monument of the past for his aesthetic form in architecture; that he must not attempt to create, for originality could only come after years of painstaking study of historic precedent.<sup>88</sup> It was into the shell of document-inspired form that his plan and composition was forced to fit regardless of efforts to solve the requirements of the school program.

The following is quoted from the report of the Committee on Education of the American Institute of Architects in 1907:

Of prime importance are the classic orders, not for what they are in themselves, but because they are the terms, the language, in which a very large part of our architectural heritage is expressed. . . . Almost if not equally important is the knowledge of Christian architecture; the whole development that followed on the fall of the Roman Empire . . . the knowledge of these things is fundamental for the education of the architect; ability to apply the knowledge is essential for practice.<sup>89</sup>

*Lack of contact with the allied arts.* Only four of the schools maintained any contact with the allied arts and in these cases it was not effective. Lloyd Warren said, "I go to the school at Harvard and find the architects in splendid isolation. The same thing occurs at Columbia."<sup>90</sup> He urged the further separation of the schools from engineering divisions as a step toward a better collaboration of the arts.

*Order problems.* The beginning student was inevitably led to the study of architectural design through problems involving painstaking

<sup>86</sup>Henry Van Brunt, *Technology Architectural Review*, 1:11, April 15, 1888.

<sup>87</sup>*Proceedings of the American Institute of Architects*, Twenty-eighth Annual Convention, 1894, p. 28.

<sup>88</sup>A. D. F. Hamlin, "The Influence of the École des Beaux-Arts on Architectural Education," *Architectural Record*, 23:243, April, 1908.

<sup>89</sup>"Report of the Committee on Architectural Education," Fortieth Annual Convention, American Institute of Architects (Published separate from the Proceedings of the Convention; Washington, D.C.: Gibson Brothers Press, 1907), p. 10.

<sup>90</sup>Lloyd Warren, open session, *Proceedings of the Forty-ninth Annual Convention*, American Institute of Architects, Vol. XLIX, 1915, pp. 22 and 23.



copies of the principal orders of Greek and Roman architecture as laid down by the French version of Vignola or the more readily accessible version which Ware of Columbia University had prepared. He was taught to draw with as much accuracy as possible and to render laboriously with India ink.

*Application of the orders.* Following the abstract order problems the student was given simple compositions, or *analytiques*, in which he applied the elements to a portion of a building. Here the general objective was a further drilling in the forms of classic architecture and a study of the traditional laws of formal composition, as these were presented in both the architecture and the layout on paper.

*The plan projects.* During the second, or at the beginning of the third year, the student began his first projects in the planning of the entire building. These corresponded to the second class *projets* of the École or the Class B *projets* of the American Beaux-Arts. During the fourth year the problems became more elaborate and the requirements more involved corresponding to the Beaux-Arts first class or Class A *projets*.

*The sketch problems.* The major problems were interspersed with sketch problems usually of nine hours' duration which were similar to the Beaux-Arts *Esquisse-Esquisses* during which exercises the student was supposedly thrown upon his own responsibility without the assistance of either the instructor or the library documents. These short and more original problems with their natural emphasis on quick presentation constituted a relief from the prolonged discipline of the plan projects. It was here that the greatest opportunity was offered for the student to give vent to his creative imagination and his urge toward the informal and romantic in design.

*Separate course in rendering.* Six of the twenty schools in 1912, and for the most part the more recently established ones, offered courses in rendering which were separate from the design courses and distinct from the regular drawing courses.<sup>91</sup> The older schools, however, followed the practice of the École in depending upon the student's acquiring his first skill in rendering by direct practice in his early design problems.

*Courses in the theory of design.* Eleven of the schools offered separate courses in the theory of design.<sup>92</sup> Except for very occasional, informal talks to the students as they gathered around the drafting room tables to discuss some particularly interesting phase of the work, the theory course offered the only opportunity for organized group discussions. It was the only point throughout the entire design curriculum at which

<sup>91</sup>*Bulletins and Record* of the schools for 1911-12.

<sup>92</sup>*Loc. cit.*



might be provided a clear summary of the principles underlying the fragmentary individual instruction.

*The thesis in design.* Fourteen of the twenty schools required a thesis at the close of the last year of the undergraduate period.<sup>93</sup> The project was more extensive, the program was more complete in its requirements, and the time allowed was much longer than for the regular projects. It usually included some definite considerations of the structural as well as the more practical functional requirements in the building or groups of buildings which constituted the study. The objective was to round out the architecture course with an opportunity for the student to work more independently upon a project which tended to summarize as far as possible the training he had received in the different subjects of the curriculum, and also to make a final demonstration as to his ability in design and presentation. The thesis in design was the only portion of the architecture program in which any attempt was made to integrate the subject matter groups of the curriculum.

*Flexible promotion in design.* In seven of the schools promotion from grade to grade in design was by means of points awarded in the judgments.<sup>94</sup> This École feature may have made possible a better adjustment to the level of advancement of the individual students. It tended, however, to throw more emphasis upon the design mention and the already greatly overstressed element of individual competition in this subject.

*The design problem program.* The school program stated the principal conditions to be met in the solution of the problem without introducing too many limitations of minor details. It was purely a pedagogical device and often omitted elements of function without which no designer in practice would attempt to plan a building. It was not applied to an actual location, and the requirements were often of a character entirely foreign to American conditions. The program definitely specified that which was needed by the student in the development of his paper project. It was intended to stimulate his imagination and interest and to present a variety of possible solutions. The student who had been taught to turn to the reproductions of classic Greek and Roman types for his authority was again confronted in most of these programs by situations that were largely artificial. The following problems were selected at random from a list of Class "A" Projects of the Society of Beaux-Arts Architects during the year 1911 and 1912, given in the *American Architect* in which the Beaux-Arts programs were then published: A Theological Seminary, An Island Pavilion, A Reception Room for the President, A Supreme Court Building, A Conclave Building for the Election of a Sovereign Pontiff. It would be impossible to choose subjects that were much farther removed from the life and comprehension

<sup>93</sup> *Bulletins and Records* of the schools for 1911-12.

<sup>94</sup> *Loc. cit.*



of an American college junior and senior. Richard Wallace Tudor wrote:

Occasionally there was a short excursion into the field of reality, but this was considered by our teachers and ourselves as a humdrum, uninspiring sort of place, for, seemingly (and as a matter of fact), it had little to do with the goal for which we were striving. On and on we were led into that region of dreams, the land of the great monumental baths, the pantheons, the great establishments for the reception of royal guests, into the land of unreality.<sup>85</sup>

*The preliminary sketch or esquisse.* In all of his major projects the student, upon receiving the program, was given a short period of time, usually nine hours, to complete a preliminary study without the aid of either the instructor or library documents. At times an advance announcement of the general topic was made, and under some instructors brief preliminary advice was given to the class when the problem was completely foreign to their experience. The students working together in the drafting room were usually greatly influenced by each other's ideas, but the *esquisse* was intended to be an original sketch.

The general solution submitted established the *parti* for the problem. If this were transgressed beyond reasonable grounds the student lost credit for the entire project. For this reason he soon learned to commit himself only as far as he was forced to do in the required *esquisse*.

The purpose of the preliminary sketch was: first, to make certain that the general solution was, as far as was possible, the expression of the individual student; secondly, to develop resourcefulness, mental discipline, and the ability readily to grasp a solution; thirdly, by the forced following of the scheme to which the student had committed himself, to constitute restrictions supposedly comparable in effect with those found in practice on every building job, that is, financial limitations and compliance to the eccentricities of a client's taste, and the like; fourth, to restrain the student in his study to a single definite line of reasoning from the embryonic scheme to the final solution; fifth, to assure a variety of solutions for purposes of comparison in the classroom.

The process of study in the solving of an architectural problem, although the conditions imposed were largely artificial, was considered of greater importance than a more consistent attempt on the part of the student to discover the best possible solution. Since the instructor labored along with the student to overcome the handicaps of a faulty *esquisse*, this constituted one of the most typical of the educational devices of the system.

*The period of study in the design project and the methods employed.* The instructor met his class about twice every week at which times he attempted to look over the work of each student, and to offer criticisms and suggestions as to the next step in the development of the problem.

<sup>85</sup>Richard Wallace Tudor, "The Circian Shadow," *The Journal of the American Institute of Architects*, 6:225, May, 1918.



Following the method of the École most instructors supplemented this criticism by sketching on the project for the student. Often an entire solution was roughed out on tracing paper by the instructor. The French instructors, because of their language handicap, were especially given to drawing. The personal interest in the showing made by the students at the judgment, whether conscious or not, was undoubtedly a factor in this tendency toward over-assistance. The learning of the student was accomplished largely through two processes: first, by the constructive criticism of the student's own efforts, and second, by the inspiring example of the master as he created for the student a suggested solution to a problem with which the student had struggled.

The usual method in developing the design project consisted of study after study in pencil on tracing paper. At first these studies were kept at a small scale covering the more general or major conditions of the problem. As the project progressed the student brought the studies up to the final scale required in the program. In every phase of the development, as many varied solutions were tried as were permitted by the *esquisse* and the time allotment. The instructor usually approved the solution finally adopted for presentation.<sup>96</sup>

In studying the plan project, the important elements as laid down by the program were carefully analyzed and organized into a formal solution of plan always including, in a logical manner, a consideration of the related composition expressed in the elevation and section. Little or no reference was made to building materials or structural processes and their effect upon the architecture. Principal proportions in the mass of the building were considered rather than details. Large-scale detailed studies were seldom attempted in the plan projects.

As the student turned his attention to the architectural character of his study he was led by the instructor to the library documents where was to be found his authority for all architectural motives. Often from the beginning of the organization of his plan the student was influenced by some scheme he had noted in the library and knew that he could "crib" for his solution. Especially was this true when the subject of the program had been previously announced.

*The presentation.* The final rendering of the project included the indication of walls, circulation systems, and floor or ceiling mosaics as well as the immediate entourage of the building in plan, and a formally rendered elevation and section. At times these problems were rendered in weak color. Any positive or bold use of color, however, was forbidden. The height of the walls and piers, which were always considered as built of stone, was indicated in plan by the thickness of the lines or *poché*. An indication of mosaics in the plan was used for the purpose of bringing out the important elements and making it readily legible as well as for embellishment. This indication in both plan and entourage

<sup>96</sup>Bossange, *op. cit.*, p. 107.



was a highly developed system inherited from the École. It was commonly abused, however, becoming merely an artificial means of decorating the paper plan.

*The judgment.* The features of student competition and of jury judgment were entirely a heritage from the École. The completed problems were called in at a definite time, hung upon the walls, and judged by a jury composed either of design faculty or outside practicing architects or a combination of the two groups. This jury, which had had little previous contact with the development of the project, passed upon the student's efforts placing awards upon the drawings according to the Beaux-Arts system of medals, mentions, or checks. The *hors de concours* was meted out to any solution which seemed sufficiently to transgress either the written program or the student's preliminary sketch. The judgments were not witnessed by the students. However, a review of the important points covered and the principal criticisms of the jury were often given later to the class by a jury member or by the instructor. It was by the results of the judgments that the students were graded in design.

In sixteen of the twenty schools a connection was maintained with the Society of Beaux-Arts Architects.<sup>97</sup> Much of the design work from these schools was sent to the New York City studios of the Society for judgment. Sometimes a combination of local and Beaux-Arts judgments was evolved. The judgment constituted the climax in every design project toward which all the student's interest was centered.

*The continued emphasis upon the classic in the design project.* In the plan projects the style usually demanded was Classic or Renaissance, with occasionally a digression, when the nature of the subject suggested it, into some of the other historic types. The final products of the senior year tended toward grand and monumental schemes after the manner of the great École *projets*. Here again the style was almost always classic. The design student of Eclecticism began his college career with the classic column and ended it with vast colonnades.

#### B. Science and Construction

The study of building construction had been required at the École des Beaux-Arts, but this branch of the curriculum in the American schools was definitely a product of the universities of this country. The earliest schools had emphasized architectural construction as based upon local conditions, and the engineering divisions in connection with which most of the later schools developed were the outgrowth of the practical American science of construction. A. D. F. Hamlin said in 1908:

It (architecture in the United States) has advanced along two lines, that of monumental planning and composition, thanks largely to the earlier influence

<sup>97</sup>Records of the Beaux-Arts Institute of Design, New York City, 1910 to 1912.



of the Paris school and schoolmen; and that of scientific construction, as a result of wholly American initiative.<sup>98</sup>

In the case of the schools which were closely connected with engineering, highly developed courses in construction were readily available and, even where the administrative connection was remote, it was inevitable that the engineering courses were often utilized regardless of their suitability for the student of architecture.

Every school of this period included the study of building construction in its curriculum. It was universally recognized that some comprehension of structural principles was necessary for the architect. The standard minima of the Association specified a minimum of twenty-four units of mathematics, science and construction.

*Mathematics and science.* In all but two schools, Michigan and Georgia School of Technology, the courses in mathematics and science required for the architecture students were given in the general mathematics and science departments, with the exception that at Illinois physics was given under the engineering division.<sup>99</sup> Following the practice of engineering, fourteen of the schools required calculus. Here the student was compelled to master theory which was basic preliminary training for engineering, but which had little possible connection with the study of architecture. The laboratory sciences were limited to physics and chemistry. Physics was required in fifteen schools and chemistry in nine.<sup>100</sup> The subject matter was largely theoretical and general in nature with but very little direct application to the subsequent construction courses.

*Construction subjects.* Seven schools limited the study of construction to two years, while in the other thirteen instruction in the subject required at least three years.<sup>101</sup> The actual content of the courses, however, was approximately the same as in all the schools. A minimum of sixteen units of construction proper was specified in the standard minima. The subject always included theory of construction and applied construction, as well as a limited study of building equipment. In the case of the last division of the subject, it was recognized that only an extended practical experience could provide the mass of detailed information required as a foundation for any comprehensive study. In accordance, however, with the general philosophy of the period, the schools failed to provide many of the basic principles in building equipment which the student could have mastered and which would have been of value to him in his early practice.

<sup>98</sup>Hamlin, op. cit., p. 244.

<sup>99</sup>*Bulletins and Records* of the schools for 1911-12.

<sup>100</sup>*Loc. cit.*

<sup>101</sup>*Loc. cit.*



*Theory of construction.* Lecture courses in theory of construction were always included in the curriculum. In nine of the schools this portion of the subject was given under engineering and in the case of a tenth school, Cornell, part of it was given under that division.<sup>102</sup> In three other schools the subject was taught by an engineer within the division of architecture, while in seven it was given by an architect.

*Applied construction.* The courses in applied construction were more generally retained within the architecture division. Only five schools depended upon their engineering division for instruction in this branch of the subject. In the other fifteen schools, it was given within the department of architecture, by an engineer in seven and by an architect in eight.<sup>103</sup> Analysis of stresses, computation of structural elements in wood, steel and reinforced concrete, and drafting was included in all of the applied construction courses. At five of the schools, architectural working drawings were also included under this division of the curriculum.

Significant of the period of Eclecticism was the fact that only three schools offered a separate course in architectural materials, and only five more of the twenty schools included any reference to this important subject under applied construction.<sup>104</sup>

*Lack of integration between design and construction.* The early schools had made little distinction between the study of design and construction. At the beginning of the Eclectic Period, however, these two major subjects in the architecture curriculum became alienated. There were three direct causes for this anomaly in architectural education: first, the fact that the practice of structural engineering had developed into a complex and highly specialized profession largely separate from architecture; second, the influence of the École with the emphasis of its graduates upon design; third, the spirit of Eclecticism both in the profession and in the schools. In a time when the architect turned to the periods of the past for every idea in design, such matters as the processes of modern construction could scarcely be associated with it in his thinking. The fact that the subjects of science and building construction were usually given in connection with engineering or by an engineer with the engineer's viewpoint within the architecture division, fostered the alienation. In this manner the "great tradition" in architecture was lost in the schools as well as in the profession of architecture.

The mathematics and pure science courses were largely unrelated to each other and to any other branch of the architecture curriculum, as was the case in almost all courses given under university divisions separate from architecture. The lectures in theory of construction, when

<sup>102</sup> *Bulletins and Records of the schools for 1911-12.*

<sup>103</sup> *Loc. cit.*

<sup>104</sup> *Loc. cit.*



given under engineering, were disassociated to a slightly less extent for they were organized as direct prerequisites to the subsequent course in applied building construction which, being usually given within the architecture division, was better integrated with the architecture program. In cases in which both theory and applied construction were given under architecture a definite attempt was made to unify the two branches and also to relate this experience as far as possible to the problems of design. Killum's courses at Harvard were outstanding examples. At Pennsylvania the student occasionally worked out some of the structural details of his design problem in construction class, but the nature of the Beaux-Arts *projet* prohibited much direct coordination between the problems of these two branches of the curriculum.

*Character of the science and construction courses.* W. H. Lawrence of the Massachusetts Institute of Technology said in 1916 that in his opinion the architecture student should be given a "constructive sense so he would feel structure" in his design.<sup>105</sup> In this statement he expressed the thought of educators in architecture generally; nevertheless, the actual construction courses were planned from the standpoint of the engineer both in the matter of content and method of instruction. In both theoretical and applied construction the methods were analytical, and details rather than broad principles were stressed. The entire approach was scientific and completely removed from the Eclecticism of design. It was understood that the student would probably never make use of the detailed information of the construction course, but that in some mysterious manner this experience would develop in his mind a sense of structure in architectural design.

No attempt was made to discover those qualities of modern materials and structural processes which might form a basis for logical architectural expression. At the beginning of the period members of the Committee on Education of the American Institute of Architects recognized this weakness in American architecture when they said:

Let us turn to the influence that steel and plate glass have exerted upon the exterior of these buildings. Here their influence is written in legible lines by the numerous *attempts* which have been made to vary the proportions of historic styles of architecture to fit the requirements which have come with the use of these two hitherto unknown materials. These *attempts* are mostly failures, as viewed from an artistic or architectural standpoint—no, they are not failures, they are only unsuccessful efforts. . . . They prove to us that our ideas must be reformed and expressed in a different architectural language.<sup>106</sup>

It was, for example, a matter of the scientific method of designing a steel beam and its connections rather than any comprehension of that true

<sup>105</sup>W. H. Lawrence, *Minutes of the Fifth Annual Convention of the Association of Collegiate Schools of Architecture*, Minneapolis, Minnesota, December 5, 1916, p. 40.

<sup>106</sup>"Report of the Committee on Education," *Proceedings of the Forty-first Annual Convention of the American Institute of Architects*, Chicago, Illinois, November 18-20, 1907, p. 100.



nature of steel as a structural material which should lend distinct character to the building of which it was the essence. No visualization or imagination was encouraged in the construction courses of the period. They were limited, scientific and practical with a distinctly American flavor and constituted an ill-adjusted element of the architectural education of Beaux-Arts Eclecticism.

### C. History of Architecture

During the period of Eclecticism with its strong emphasis upon the importance of architectural tradition, the history course held a place in the curriculum second only to design and drawing. The standard minima of the Association specified eight units of this subject.

Patterned after the history of architecture lectures at the École des Beaux-Arts, the course was conducted as a series of lectures covering the principal periods of architecture in the western world from Egyptian to the end of the Renaissance. Fourteen of the schools offered two years of history, while five gave three years.<sup>107</sup> One school limited the subject to one year. Any quantitative statement must, however, be considered of importance only in noting the spread of the subject over the curriculum. The traditional content of the course was to a large extent fixed.

*Emphasis upon classic periods.* Because of the strong emphasis upon classic architecture at the time, stress was placed upon the Greek and Roman periods and the Renaissance. Since the baroque of the seventeenth century represented a breaking down of the pure classic form of the Renaissance, little study of this period was included. It was labeled as vulgar and a dangerous phase of the subject to present to students.

*The Modern period.* Fourteen of the schools provided some study of the architecture of the eighteenth and nineteenth centuries, including American architecture.<sup>108</sup> It must be understood, however, that this was given from the eclectic viewpoint. Nothing was considered of great importance in the Modern period which did not relate to the historic periods. Therefore, with the possible exception of the American Georgian Colonial and the Classic Revivals, any thorough study of the history of architecture terminated with the Renaissance.

*Study methods in history of architecture.* The lectures upon the history of architecture were necessarily accompanied by illustrations. The procuring of adequate illustrative material had been a great problem in the earlier period. By the mid-Eclectic Period, however, most of the schools had acquired a good collection of lantern slides and mounted photographs as well as illustrated reference books.

The students supplemented the lecture notes with study in reference works in the library. In cases where the reference material was exten-

<sup>107</sup> *Bulletins and Records of the schools for 1911-12.*

<sup>108</sup> *Loc. cit.*



sive, this phase of the work was conducted as closely supervised research. At Columbia with the excellent facilities available, definite class hours were devoted to "History Research" in the Avery Library. Fourteen of the schools required drawings and tracings from the illustrations of the more important monuments. This procedure tended to fix in the student's mind the characteristics of the examples studied. The history course was concerned with three-dimensional objects which could be studied and recorded better by the graphic than by the written method. The architect's natural means of expression was with his pencil, and the practice of accurately and rapidly recording the essential elements from an illustration was excellent practical training for the student.

In addition to drawing from the library documents some schools required sketching from the screen at periods other than during the lecture when there was time for careful drawing. This exercise was a step toward the reality of sketching from actual buildings. At the Massachusetts Institute of Technology the class also sketched directly from the screen during the lecture. While this method tended to develop the student's ability to observe closely and quickly to note outstanding characteristics, it doubtless diverted his attention and prevented him from entirely grasping important points in the lectures. It was, however, a most valuable drill in rapid architectural sketching.

*History of ornament.* Eight of the schools of this period offered separate courses in the history of ornament.<sup>109</sup> Where it was not a separate course, some emphasis, varying in amount, was placed on the study of ornament in connection with the regular course in history of architecture. The method of presenting the subject was similar to that of the history of architecture except that more detailed drawings and tracings from the library documents were required.

An interesting variation was the course offered at the University of Pennsylvania under Herbert E. Everett where the students made designs instead of copies of the more common historic motives such as the Roman scroll or the Renaissance panel. The ornament was built up in strict adherence to certain underlying principles as they were interpreted by that famous instructor. The resulting designs were as nearly reproductions of the historic counterparts as they could be made by the modern student. The unusual feature was that the drawings were produced as a result of studying basic principles rather than by actual copying. There is little doubt that this educational device was excellent in bringing out the design principles employed during the period.

*The archaeology projet.* In those schools which adhered closely to the programs of the Beaux-Arts Institute of Design, archaeology *projets* were included. They were given in connection with the course in design as at the École and were not related to the history of architecture course.

<sup>109</sup>*Bulletins and Records* of the schools for 1911-12.



The principal objective, however, was the acquiring of information regarding the characteristics of architecture during some definite historic period; and, except for the involved training in rendering and sheet composition, these studies should be regarded as part of the study of the history of architecture.

The major design projects were interspersed throughout the advanced years with these archaeological problems. The programs specified a definite historic style and a typical subject. The student chose, with the aid of the instructor, an outstanding example or portions of similar examples which best typified the character of the period. This material he copied or reassembled and organized into a composition on paper with a grouping of characteristic details. The presentation was usually made in color. The final problems were judged in the same manner as the design problems and were credited in the design course. The criteria were: first, the grasp of the character of the period in question; and second, the sheet composition and presentation.

*History of art.* Nine of the twenty schools offered some form of history of the related arts, with emphasis upon painting and sculpture.<sup>110</sup> Five of these institutions were among those which were still departments of engineering divisions. These facts must be considered as an indication of the growing tendency to classify architecture as primarily a fine art. It is to be noted, however, that this lecture course was in no way integrated with the major subjects of the architecture curriculum.

*The romantic viewpoint.* The history courses, in contrast to the disciplinary character of design, were highly romantic. The student was told of the splendid monuments of the past ages. The fact that they were in distant lands also contributed to this reverence of the past, as such, in the history classes. The greatest American teachers in this subject had been thorough romanticists, and they devoted their lives to describing the splendors of what they considered to be the masterpieces of all time. This was a basic element of the education of Eclecticism. Joseph Hudnut said:

You have forgotten the men who taught you how to calculate and how to draw; but you have not forgotten the man who revealed to you the glory and the significance of your profession; who united you with that winding stream that has flowed "with touch of waters" from the first ages. Out of the spark that he kindled in your heart has grown the flame that has lighted your life and ennobled your every achievement.<sup>111</sup>

*Emphasis upon the detailed characteristics of the periods.* The history of architecture course has always offered an opportunity to build

<sup>110</sup>*Bulletins and Records* of the schools for 1911-12.

<sup>111</sup>Joseph Hudnut, "Round Table Discussion: The Teaching of History of Architecture," *Minutes* of the Seventeenth Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D. C., May 19 and 20, 1930, p. 29.



up in the minds of students a concept of the fundamentals of architecture. In all the schools, the instructors realized that any serious study in this subject should reach further than the mere pigeon-holing of style details. Hamlin attempted to teach the history of architecture at Columbia University not as archaeology, but as related to the general history of civilization as well as to the practical problems in design. Three of the schools specified some study of the effect of materials upon the formation of the period types, and the Massachusetts Institute of Technology provided a separate course, "Influence of Materials upon Architecture," which was given from the historical viewpoint. Nevertheless, in the period of Eclecticism, when the natural laws by which the styles had developed were flagrantly violated and when architectural facts and a vocabulary of historic forms was what the student needed for his design project, little real conception of the meaning of architecture as an expression of a time and a people was possible.

Three of the schools offered directly parallel courses in history of civilization; however, there could have been little coordination between the two subjects in the mind of the student. He was drilled from the first, in the principle that architecture was to be found, not in the conditions which centered in life, but in books.

*Lack of scholarship.* Although the history of architecture offers an unusually rich field for scholarship, it was almost universally lacking. It is interesting to contrast this characteristic of the Eclectic Period with Ware's strong emphasis upon the importance of scholarship in the early American schools. The causes for this condition in architectural education may be summarized as follows: first, the crowded curriculum with so little time for any research; second, the emphasis upon obtaining a vocabulary of architectural facts, particularly through the medium of drawing; third, the allocation of the subject so early in the curriculum; fourth, the fact that, except for a few outstanding teachers, the history courses were given by typical American architects who were essentially technicians; fifth, the architecture departments tended to look to the liberal arts division for cultural subjects, and any emphasis upon academic scholarship; sixth, the spirit of Romanticism which colored all attitudes toward the monuments of the past was not conducive to broad scholarship in the study of the history of architecture.

#### D. Drawing

*Instrumental drawing subjects.* In architectural education skill in instrumental drafting was acquired in the design classes and no separate course was given in the use of drafting instruments as in engineering. The drawing courses in architecture were freehand except for graphics and working drawings. These two subjects, however, involved the study of methods of graphic representation of architectural forms, and therefore they may be included under the caption of drawing.



*Graphics.* The subject of graphics included descriptive geometry, shades and shadows, and perspective. Every school required graphics in the early portion of the curriculum.<sup>112</sup> It was often listed, however, under the sub-division captions or entirely under descriptive geometry. The standard minima of the Association specified a minimum of four units of graphics. While some of the objectives were similar to those of the freehand drawing subjects, in graphics the drawing was created by means of scientific principles rather than from an object. It was a study of the theory underlying all formal architectural representation.

The essential theories of the subject far antedated any school of architecture, but the immediate precedent for including graphics in the curriculum was again to be found in the program of the École des Beaux-Arts. Doubtless the fact that descriptive geometry was popular in the engineering divisions of the time was another reason for including that branch of graphics.

The course was always conducted by means of lectures and a series of drafting room exercises either with or without a text. Models were often constructed for demonstration and to assist the students to visualize the general three-dimensional conditions of the problems.

*Descriptive geometry.* The objectives in descriptive geometry were the mastering of the principles of orthographic projection, the learning of methods of solving certain basic problems which have to do with projections in the drafting, and the development of the students ability to visualize correctly a three-dimensional situation represented by two-dimensional orthographic projections. The first two objectives were realized within the limits of the school room, but there was almost no application of the theory in actual architectural drafting. Where shades and shadows and perspective were given from a descriptive geometry standpoint this preliminary training was of course necessary, but for these theoretical subjects only. That much improvement was realized in line with the third objective, the general ability to visualize, has never been proven. The average student could visualize an object the characteristics of which he knew by experience, but failed in the case of a theoretical point, line, plane or angle which had no material existence. The problems on paper became very difficult although the actual three-dimensional situation represented was exceedingly simple. The student solved them by rules given him by the text or the instructor. Where he did develop some power to picture the point, line and plane situation there was very little repetition of the experience in subsequent courses.

One of the great weaknesses of the education of the period was its continual emphasis upon paper techniques with little check upon whether the student actually visualized to any extent the three-dimensional architecture which his drawings were supposed to represent. Some of the later schools, as for example Yale, have omitted descriptive geometry

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<sup>112</sup>*Bulletins and Records of the schools for 1911-12.*



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with no apparent weakening of the students in direct comparison with those of other schools.

*Shades and shadows.* In a period when formal academic rendering received much emphasis, a separate course in the theory of shades and shadows was necessary. The problems had to do with simple objects which the student could visualize. Continual application was made of the basic principles of this theory in all of his formal renderings; so that, although the approach was mechanical, detached and over-theoretical, the subject was then an important unit of the curriculum.

*Perspective.* The subject of perspective has always been a necessary part of the architecture student's training. While again the approach was too mechanical and the involved theory too detached from the rapid methods and the time saving short-cuts of the subsequent projects and office perspectives, yet the thorough foundation given in basic theory of the subject was indispensable.

The plan method was usually stressed, where foreshortening was obtained by a plan of the object. Sometimes a variation of this method called "perspective plan" was included. As far as can be determined, however, there was little training in the more direct methods now usually used in practice. As in the case of shades and shadows the approach was entirely mechanical with little application of the theory to the freehand drawing and rendering of actual architectural subjects or to the completing by freehand of subjects blocked out mechanically.

*Working drawings.* Ten of the twenty schools included a separate course in working drawings, and five additional schools gave some instruction in this subject in the applied construction courses.<sup>113</sup> It was quite logical that the drafting of structural members should be extended to include architectural details, and usually there was a close relationship between the two branches of drafting. The subject involved too many details of a practical nature to be very closely related to the design courses of the period.

There were two objectives in working drawings: first, an elementary knowledge of common forms of architectural construction; and second, some skill in drawing, detailing, and dimensioning in accordance with good office practice as a preparation for entering an office.

The subject of working drawings was given only a very minor place in the curriculum where it was offered at all, and neither of the above objectives was held to be important. The student of architectural Eclecticism was not to be hindered by the limitations of practical details which could be learned later in the office.

*Freehand drawing subjects.* Under the caption of freehand drawing are included the following subjects: drawing from casts, drawing from life, water color, pen and pencil, and modeling.

<sup>113</sup> *Bulletins and Records* of the schools for 1911-12.



While modeling embodied a different medium and was the one subject that was not concerned with paper techniques, yet the objectives were for the most part the same as in freehand drawing and it is grouped with the drawing subjects.

Eleven of the twenty schools provided four complete years of freehand drawing subjects, while the remaining eight offered three years of these subjects.<sup>114</sup> The standard minima of the Association specified a minimum of twelve units of freehand drawing.

*Objectives in freehand drawing subjects.* The freehand drawing courses given during this period stressed three objectives:

1. The major objective in all freehand drawing subjects was the development of skill in representing architectural forms. Drawing was the architect's means of expression. It was not entirely an end in itself as in the case of the freehand drawing of the painter, but a tool subject. A faithful representation of the object copied was always the aim, although in some of the more advanced courses the architectural draftsman's peculiar technique was emphasized.

Few students entering the American schools of architecture had received any valuable preliminary training in drawing. Their knowledge of the visible characteristics of objects was all in terms of three dimensions; so that they were faced with not only the problem of mastering the techniques of the various architect's mediums, but of overcoming a lifetime of hindering conditioned visual reactions.

2. Whether the student worked from an architectural object or from nature it was the hypothesis that there was a development of appreciation for the aesthetic qualities embodied in the object. However, that there was formed any aesthetic concept beyond a mere appreciation of the beauties of the single object copied, has not been proven.

3. The study developed an ability to visualize or to create an image of a three-dimensional form from a two-dimensional drawing. After practice in copying from a three-dimensional object to a two-dimensional drawing, there was held to be an improvement in ability to reverse the process. However, in spite of the training in freehand drawing the architecture student was traditionally weak in this regard unless he brought to the school a natural capacity for thinking accurately in three dimensions. It was a handicap which he had to overcome, if this was ever completely accomplished, when he later came to deal with realities in the office of a practicing architect.

*Drawing from casts.* The courses in drawing from casts followed to a large extent the methods of the École des Beaux-Arts. Every school of the period required from one to two years in the subject. It was the prerequisite for all other freehand courses.

<sup>114</sup>*Bulletins and Records of the schools for 1911-12.*



The work consisted of carefully made studies from plaster casts of well-known historic (largely classic) examples of sculpture and fragments of architecture. The medium was charcoal, sometimes supplemented by pencil and later by water color wash. The student learned to make a laborious and faithful copy of the casts he drew; he learned how light plays across a molded or carved surface and how to represent upon paper the flow of light and the shades and shadows which portray the form and character of surfaces. He developed also some appreciation of the aesthetic architectural qualities of the classic details from which he worked. In a period of extreme Eclecticism, when the designing of architectural details was largely a matter of copying and readjusting of classic and semi-classic forms and when the *analytiques* and *projets* were painstakingly rendered with India ink, drawing from casts was a good foundation course.

*Drawing from life.* In twelve of the schools, instruction in drawing from life followed the courses in drawing from casts.<sup>115</sup> The tradition in architectural education of drawing from the nude figure had a precedent in the École des Beaux-Arts. Doubtless also the association, in some schools of architecture, with fine arts where drawing from life was a major subject, was another factor leading to the inclusion of this subject in the curricula. The methods and objectives were, of course, largely the same as in drawing from casts. Also, while there was not sufficient time in the architecture curriculum to make possible a thorough training in this difficult subject, the student was expected to obtain enough knowledge of the figure to be able to draw it intelligently in the sculpture details of his designs.

There was little relation between the attributes of a human figure and those of a piece of architecture. The students were more interested in drawing a living figure than a piece of plaster, but, except for this fact, there was no more value in this subject to the architecture student of that time than a continuation of drawing from inanimate models. There were excellent schools that required no drawing from life.

*Water color.* Fourteen of the schools offered separate courses in water color, which was the popular medium for rendering except where the very formal presentations called for India ink.<sup>116</sup> Particularly in the treatment of the entourage some special training in the use of water color proved very useful. Again the emphasis was upon the faithful representation of the forms drawn.

Two methods were used in presenting the subject: first, by drawing directly from still life and out-of-door subjects; and second, by copying library photographs and rendering them in color. The first method embodied the same training as did the other freehand drawing subjects

<sup>115</sup> *Bulletins and Records* of the schools for 1911-12.

<sup>116</sup> *Loc. cit.*



and color was studied as it existed in nature. The second method necessitated the determination of color values by general laws based upon conditions in nature. When adequately presented to the student, the latter method was much more effective in training him to render his architecture problems convincingly. George W. Dawson's course in water color at Pennsylvania was a well-known example of the success of this method.

*Pen and pencil.* Only eight of the schools offered separate courses in pen and pencil.<sup>117</sup> Pen and ink was not a popular medium with the architecture student because of its lack of flexibility and the peculiar skill required to use it successfully especially over large surfaces. On the other hand the student's continuous use of the pencil in all his drafting room courses made special instruction in that technique scarcely necessary. Where courses in pen or pencil were given, the methods and objectives were largely the same as those for the subject of water color. The techniques used, however, were those of the architectural draftsman where the "snappy" line—the product of years of experience over the architectural drafting board—was the important quality rather than a broader composition of values or even any very realistic portrayal of architecture.

*Modeling.* Eleven schools included modeling in their curricula.<sup>118</sup> During this period the course consisted largely of exercises in copying in clay the sculptural forms most common in classic architecture. The principal objective was the improvement of the student's visualization and appreciation of the aesthetic architectural qualities of classical masterpieces. This was the only point in the curriculum where the student worked directly in three dimensions from the object studied without the hindrance of being compelled to translate each impression to a two-dimensional drawing, and without being limited to one direction of observation. There was little attempt at design in the modeling class during the Eclectic Period.

*General character of the freehand drawing subjects.* The freehand drawing processes were either those of faithful laborious copying as in the drawing from casts and from life, or the so-called "tricky" techniques peculiar to the architectural draftsman as in pencil sketching. Although both methods of representation had an application in the type of drawing and rendering then required in design, there was little direct attempt to integrate any of the drawing branches with the other divisions of the architectural curriculum. The student received continuous practice outside the regular studio-classes throughout the entire four years, and it was in connection with his major subject of design that he finally mastered his school drawing techniques.

<sup>117</sup> *Bulletins and Records* of the schools for 1911-12.

<sup>118</sup> *Loc. cit.*



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The point of view in the drawing classes was normally that of Romanticism. With the exception of the life class and a limited amount of drawing from nature, all freehand drawing of the Eclectic Period dealt with examples of the past. The actual techniques, especially in sketching and informal rendering, became qualified by the processes of representing the old and the picturesque. In this manner the attitude which maintained in the drawing studios was almost as romantic as that in the history of architecture classes.

### E. Academic Subjects

The early American school of architecture, connected as it was with engineering and the construction problems of that day, had been narrow and practical in its curriculum requirements. Ware and his attempt to introduce a broader cultural program in the new school at Columbia University and Warren at Harvard University had provided the exceptions.

During the period of Eclecticism, leaders in the practicing profession as well as in education increasingly urged a broader and more cultural education for the architect. A resolution of the American Institute of Architects in 1907 endorsed steps taken by the schools toward lengthening the period of architectural education and extending the scope of its cultural contents.<sup>119</sup> In 1911 the Committee on Education in its annual report to the Institute convention summarized the movement as follows:

Within five years an amazing change has revealed itself, and now the pendulum swings back toward broader and more liberal culture. . . . We cannot lag behind with this great reform, which is one of the most significant and encouraging events of recent times. Our schools must see to it that every architectural student is first of all an educated gentleman in the old sense of the phrase; that he does not give all of his time to the design problems or rendering exercises to the exclusion of history, both general and architectural, literature, philosophy and Latin; and to architectural engineering without a compensating study of that civilization both past and present that should condition all he does.<sup>120</sup>

To a very limited extent the cultural point of view was introduced into certain of the professional subjects such as history of architecture. Three of the schools offered parallel courses in the history of civilization within the department.<sup>121</sup> Since, however, there was no emphasis upon the meaning of architecture as an expression of contemporary civilization, there was logically little place for the study of the social sciences in the professional branches. The American schools of architecture were integral parts of universities and in this effort to strengthen the cultural

<sup>119</sup>"Report of the Committee on Foreign Correspondence," *Proceedings* of the Forty-first Annual Convention of the American Institute of Architects, November 18, 19 and 20, 1907, p. 107.

<sup>120</sup>"Report of the Committee on Education," *Proceedings* of the Forty-fifth Annual Convention of the American Institute of Architects, December 12-15, 1911, p. 48.

<sup>121</sup>*Bulletins and Records* of the schools for 1911-12.



content of the curriculum they turned as did other technical departments to the academic divisions.

Table IV indicates the number and distribution of academic subjects among the seventeen schools where the architecture curriculum began with the first year. Columbia, Harvard and California required the college academic subjects before entering the professional school. The number of years devoted to each subject is not indicated because, as noted previously, such quantitative data are not reliable. The average period for each subject was one year. The standard minima of the Association specified a minimum of sixteen units of purely academic subjects.

TABLE IV

ACADEMIC SUBJECTS REQUIRED IN SEVENTEEN SCHOOLS OF ARCHITECTURE AT THE CLOSE OF THE YEAR 1911-12†

| <i>Academic subject required</i>      | <i>Number of schools</i> |
|---------------------------------------|--------------------------|
| English .....                         | 14                       |
| Foreign language .....                | 14                       |
| General history .....                 | 4                        |
| Economics .....                       | 8                        |
| Electives (average of one year) ..... | 4                        |

The only school that required no academic subjects was Cornell, and there the entrance requirements in these subjects were relatively heavy and electives were specified in the fourth year.

The amount of cultural content in the curriculum in 1912 did not yet meet either the ideals of the educators or the recommendations of the profession. The reason for this lag within the schools was that the curriculum was already crowded. A weakening of the professional content could not be tolerated and so the only means of increasing the academic requirements was by lengthening the architecture curriculum. It was this situation which subsequently led to the adoption of the standard five-year course.

The cultural subjects taken in the atmosphere of an academic department were unrelated to each other and totally unrelated to the professional subjects in architecture. For this reason the interest of the architecture student was seldom captured. After the advisor had made certain that the student registered in the required academic courses he allowed his responsibility to cease. From the highly specialized fragments of academic offering to which he was exposed the architecture student was expected to absorb culture. His horizon may have been slightly broadened, but very often he returned to his design project with a dislike for all things academic.

#### SUMMARY OF THE PERIOD OF ECLECTICISM

*Dominance of Eclecticism and the Beaux-Arts.* The underlying principles of the architectural education of the period in the United

†*Bulletins and Records* of the individual schools, 1911-12.



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States were for the most part those of Eclecticism and the system of the École des Beaux-Arts which in turn were founded upon the traditions of the Renaissance. Most of the important features of the American schools of the time can be explained only in terms of these basic circumstances.

*Emphasis upon theory and unreality.* All architecture subjects were largely theoretical, and paper techniques were stressed in construction as well as in drawing and design. Very little consideration was given to the increasing number of important requirements of common American life, nor to the architectural possibilities of modern science, materials and structural processes. The education of Eclecticism was chiefly concerned with the aesthetic expressions of an ancient profession rather than with present-day realities.

*Little encouragement of creative ability.* The great objective was the development of a refined sense of design within the medium of traditional forms. With the emphasis upon discipline and tradition, little opportunity was given for the development of creative ability. The habits of approach to all architectural expression which were formed from the freshman year were those of almost complete plagiarism.

*Lack of integration among the subject groups.* Each of the five major groups of subjects was largely a distinct and unrelated experience for the student. Design was the "bread and butter" course with the competitive method dominating the student's interest. Here was stressed the discipline of Beaux-Arts classic Eclecticism. The construction courses, usually taken with the engineers, were scientific and practical. The history of architecture lectures under the philosophy of Eclecticism were highly romantic. The drawing from casts and from life bore little direct relation to design, and all the drawing and sketching was tinged with Romanticism. Lastly, the required courses in the academic division were widely unrelated experiences, each with the seeming objective of a foundation for a career in that particular field. This lack of unity in the major elements of a professional curriculum can only be explained by the widely unrelated conditions and influences under which architectural education had developed in America.

*Design the important subject.* It was only in the design courses that the chief business of the architect, the planning and designing of buildings, was undertaken. This fact, coupled with the constant appeal of the competitions, resulted in the great emphasis upon this division of the curriculum. As Harry Sternfeld once said of the Pennsylvania department in the presence of the author, "This is in reality a design school." The relatively intense and prolonged study of the Beaux-Arts type of design provided the most important elements of the architect's training.

*Professional ethics stressed.* Nine schools included a separate course in professional ethics. The other eleven schools included some admoni-



tion regarding this matter either as a part of other courses or informally. This was the period when, through the efforts of the American Institute of Architects, the standards of practice were gradually being elevated, and the highest ideals of the profession were reflected in the schools. The published standards of the Institute were usually used as the text. The high level of professional ethics since maintained by the better class of practicing architects has been, in a measure, due to the counsel given them as senior students in the schools.

*Lack of instruction in the business phases of architecture.* As a result of the emphasis upon architecture as one of the learned professions, the financial branches of practice which pertained more to the problems of building were not emphasized. There was no such subject as building finance in the architecture curriculum during the Eclectic Period. It should be noted also that in 1912 no well-established courses in business were given in the American universities which might have been available as electives for the architecture students.<sup>122</sup> The principal reason for the anomaly, however, was the underlying philosophy of Eclecticism. The schools were too deeply absorbed in the Beaux-Arts project and the romance of the monuments of the past to concern their students with such matters as the modern economics of creating buildings.

*Lack of a transition between the school and the office.* There was no organized collaboration with the practicing profession in the matter of a transition program between the theory of the school and the practical requirements of the office. For the most part the graduate was compelled to shift for himself. All of the schools advised summer office experience and three made it a requirement. Columbia University specified three summers or a substitute of drawings made during the vacation periods. It was a recognized principle that it was well for the student to begin the office portion of his training before he had completed his college program. Such practical work improved his draftsmanship, gave him a better appreciation of the value of his school training, and shortened the adjustment period after his graduation. There was, however, very little organized effort to provide this valuable early contact with the offices. The schools of Eclecticism were chiefly concerned with the more remote requirements of mature professional practice.

*Characteristics of the typical graduate of Beaux-Arts Eclecticism.*

1. The successful graduate possessed a sense of monumental design and taste especially within the limits of the historic styles of architecture.
2. He had developed resourcefulness in the solving of architectural problems from given sets of largely artificial conditions.
3. He was thoroughly versed in the logic of the formal Beaux-Arts plan.

<sup>122</sup> *Bulletins* of 1911-12 for the universities maintaining schools of architecture.



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4. He was skilled in the techniques of Beaux-Arts drafting, sketching and rendering on paper. He thought largely in two dimensions.

5. He had some foundation in the engineering theory of building construction.

6. He possessed a reverence for the great styles of the past and a romantic love for the old in architecture.

7. He had become an habitual plagiarist rather than a creative artist.

8. He had developed a sense of superiority over the practical, the economical, and the small in detail in the architectural requirements of modern American life.

9. He was trained in theory but he had received almost no practice in the detailed routine of a professional office.

10. He usually possessed a respect for the high ethical ideals of the profession of architecture.

*Standardization an outstanding feature of the Eclectic Period.* The final standardization of American schools of architecture is one of the most important characteristics of the fully developed period of Eclecticism. It demonstrates clearly that, to a large extent, educators believed that the best methods for training the architect for the requirements of practice in this country had been established. During the years following the World War the few more progressive schools began to attempt some slight adjustment, as noted under the history of the individual institutions. It was not, however, until the beginning of the Modern Period, about 1925, that experimentation gradually came to be encouraged in an effort to improve the preparation for the complex demands of present-day architectural practice.



## CHAPTER IV

### THE PRESENT OR MODERN PERIOD

The World War brought about a period of almost complete inactivity in architectural education. Professional practice in architecture was suspended, and the enrollment in schools of architecture was reduced almost to nothing.

With the return of normal conditions after the war, a general re-evaluation in architectural education was inevitable. The four years perspective and the vivid experiences in many of the realities of modern civilization had led both practitioners and educators seriously to question the adequacy of the standardized methods of schools in preparing for practice in the new era. In the wide-spread discussion and voluminous reports on the problem, there was general agreement upon the need for new methods and much adverse criticism on the apathy of the schools.<sup>1</sup> The first indication of any general readjustment, however, did not appear until after the advent of the so-called modern style in design, about the year 1925. As will be explained later, this style shift would have been insignificant if it had not inaugurated a much more comprehensive movement.

#### SOURCES OF THE EARLY MODERN MOVEMENT IN AMERICAN ARCHITECTURE

There are two major impelling influences in the early years of the contemporary movement in the United States. The first of these was the changing architecture of the American tall steel building, while the second had to do with the modern movement in Western Europe.

##### A. The Changing Architecture of the Tall Steel Building

The skyscraper was essentially a product of this country and radically different both in function and structure from any previous class of buildings. It was the dominant type of twentieth-century American building.<sup>2</sup> Of all present-day structures, it remained the most difficult to clothe satisfactorily with the stylistic forms of the past. It was inevitable, therefore, that any locally inspired beginnings of a new American expression should evolve from efforts to create a better design for the tall steel building.

Three minor and doubtless inter-related sources in this movement are described in the paragraphs which follow.<sup>3</sup>

<sup>1</sup>Editorial, *American Architect*, 121:189, September, 1921.

<sup>2</sup>Sheldon Cheney, *The New World Architecture* (New York: Tudor Publishing Company, 1935), p. 120.

<sup>3</sup>Charles Harris Whitaker, *Rameses to Rockefeller* (New York: Random House, 1934), p. 295.



1. *The architecture of Bertram Goodhue.* One of these minor influences emanated from the winning design for the Nebraska state capitol by Bertram Goodhue in 1919. Goodhue realized that in this attempt to create a more fitting monument for the western American plains he had laid the foundation for a new architectural expression, and he devoted the remainder of his life to its perfection.<sup>4</sup>

The architecture of this tall Nebraska statehouse was related to the early phase of European Modern, for it avowedly adhered to western American traditions of the time.<sup>5</sup> In spirit it was definitely reminiscent of classic monumentality as well as, to a lesser degree, the Oriental and Russian influence, which had developed from Goodhue's several trips to the Orient. Although the cornices, the most difficult elements to rationalize in contemporary steel buildings, were omitted, the method of construction and the architectural expression as a whole was one of stone. Nevertheless, in the bold, simple masses and the abstract beauty of its proportions, this building brought a new modern note into American architecture.

Goodhue encouraged another new element that, as will be noted later, has become recognized as a feature of the American modern movement. This was the reuniting of the allied arts, especially those of painting and sculpture, with architecture into what he called the "designing triumvirate." The Nebraska state capitol provided an excellent opportunity for the revival of this ancient tradition in architecture which had been hitherto neglected in this country.

2. *The architecture of Eliel Saarinen.* Another minor influence was initiated by the Finnish architect, Eliel Saarinen, through his second prize design for the Chicago Tribune Building in 1922. Fiske Kimball said that Louis Sullivan hailed this design in his dying breath "as a phoenix for the ashes of his old hopes."<sup>6</sup> Here again, and in this case more directly, the architecture was related to the first phase of European Modern. Traditional details were simplified and freshened. The soaring lines of the steel skyscraper were emphasized and dramatized; but it was reminiscent of the earlier attempts to solve the problem through the medium of the Gothic style. Essentially it was still a stone architecture.

3. *The effect of the set-back law.* A third minor influence was that of the New York set-back law first enforced in 1916. Developed from the application of the law to the design of masses of high buildings, constructed along the narrow streets of the metropolis after the War,

<sup>4</sup>Hartley Burr Alexander, *Bertram Grosvenor Goodhue, Architect and Master of Many Arts* (Charles Harris Whitaker, editor; New York: Press of the American Institute of Architects, 1925), p. 44.

<sup>5</sup>Fiske Kimball, *American Architecture* (New York: Bobbs-Merrill Company, 1928), p. 215.

<sup>6</sup>Henry Russell Hitchcock, Jr., "Modern Architecture II, The New Pioneers," *Architectural Review*, 63:455, 1928.



this influence became a basic American movement which originated out of a condition peculiar to its great cities. The natural results of this restriction very soon stimulated the imagination of architects throughout the country, and the receding masses, especially in taller buildings, became an outstanding characteristic of American architecture.

By 1925, one or more and in some cases all three of these minor influences may be noted in tall-building designs throughout the country as a new function and new materials gradually forced a new architectural expression. It was then no more than an early transitional style. As was proven in later years, the American architect had not altered his philosophy of Eclecticism, but without doubt it would have led in time independently to a new American architecture. After 1925, however, the influence of the modern European movement came into prominence in the United States, affecting all building types and gradually fusing with the earlier local influences in the developing architecture of the tall steel building.

#### B. The Influence of the Contemporary Movement in Europe

1. *The first phase of the European Modern movement.* The first phase was, in the broader sense, a transition between traditional European Eclecticism and Modernism, for there persisted a reminiscence of both the historic styles and the architectural vernacular of the respective countries in details and materials. The traditional forms, however, were freshened and reduced in accordance with the logical demands of new machine processes, and there was an increasing tendency to reveal the structure in architecture. As in the development of every architecture, the revitalized forms, which were at first stamped with the creative inspirations of the great leaders in each country, tended early to become crystalized into systems of stylistic formulas. These have been called collectively, for the want of a better term, "Modernistic."

The initial development of the movement extends back about one hundred years, in the work of various progressive designers, but it came into prominence in the last decades of the nineteenth century, first appearing in Austria and Holland.<sup>7</sup> The great leaders were Otto Wagner and later Joseph Hoffman of the Wiener Werkstätte in Austria, H. P. Berlage of Holland, Tony Garnier and August Perret in France. The influence of the American, Frank Lloyd Wright, was also an important factor. From Austria the movement spread to Germany and later was carried to France and other countries of central and northern Europe. By about the year 1910 it may be considered as having reached maturity, as such, continuing from that time in its several readily recognized national versions.<sup>8</sup>

<sup>7</sup>Bruno Taut, *Modern Architecture* (New York: Albert and Charles Boni, Incorporated, 1929), p. 35.

<sup>8</sup>Henry Russell Hitchcock, Jr., *Modern Architecture* (New York: Payson and Clarke, Limited, 1929), p. 95.



No important influence of the new European style is to be noted in the architecture of the United States until after the Exposition of Decorative Arts at Paris in 1925. Because of the nature of an exposition, and especially one in which the emphasis was placed upon decorative ideas, the architecture was one of shallow, sensuous beauty rather than an expression of fundamental contemporary building characteristics. It was essentially French Beaux-Arts classic, modernized after the manner of Viennese smartness. As a style it was alluring and in its reflection of traditional details, it made no excessive demands upon present-day machine processes so that it was easy to apply in American practice.<sup>9</sup> For the first time, this initial phase of European Modern architecture as a style was harmoniously and vividly displayed and intensively publicized. The United States was ready for such a movement; experiments with the tall steel building had prepared the way. After a generation of domination by the French school, it was almost inevitable that the first comprehensive American modern movement should be through the medium of the French version of the style.

2. *The second phase of the European Modern movement.* The second and more mature phase of the modern movement constituted, as far as the resultant architectural expression was concerned, a complete break with all past periods. It was held by its proponents that architecture should evolve only from a faithful expression of present-day conditions. Essentially it was a return to the basic principle of functionalism which had been neglected, for the most part, in formal architecture since the Renaissance.

Architecture was held to be primarily concerned with the organization and proportioning of enclosed spaces for human needs. The theory was that the plan, being the essential element of architectural design, should be evolved according to the niceties of present-day varied and specialized functions, without consideration of any traditional arrangement.<sup>10</sup> The masses and the planes and lines of the design were then determined, or at least definitely qualified, by modern scientific materials and machine processes. The interior became enclosed air and sunlight rather than the ancient walled place of refuge. The use of historic decorative forms, which had constituted the source of expression throughout the nineteenth century, was entirely avoided, for all such forms originated in hand-craft processes that could not logically be duplicated by the machine. The absence of traditional details eliminated regional, and national characteristics. Since the scientific and machine processes of today are universal, the new architecture was referred to as "International Architecture."

In the theory of functionalism, beauty was defined as that which provides the experience of satisfaction in perceiving an instrument nicely

<sup>9</sup>*Ibid.*, p. 147.

<sup>10</sup>David M. Robb and J. J. Garrison, *Art in the Western World* (First edition; New York: Harper and Brothers, 1935), p. 255.



fitted to its use. The source then of contemporary architecture lies in the exacting requirements of modern society, the laws of economics as applied to building and housing, engineering, the machine, and the resultant tendency toward standardization and mass-production. Man, working on this basis alone as in pure engineering, has the instinct for orderly arrangement in varying degrees. Le Corbusier says that true engineering, inspired by the law of economy and governed by mathematical calculation, puts us in accord with universal law.<sup>11</sup> This is the rational basis for the creation of modern aesthetic form. The architect must be grounded in these principles and sympathetically aware of their aesthetic significance. It is in the nature of a return to the creative craft feeling for rightness and the ancient unity of architecture and construction. The architect searches for those simple, bold, elemental forms which universally move men.<sup>12</sup> He reinforces the expressive masses and creates a symphony of simple surfaces in light. He accents revealing lines and the natural textures of modern materials, but avoids much color other than that which is inherent in his materials. He seeks a unified harmonious, rhythmical composition which becomes an aesthetic creation of his spirit.

The slogan coined by Walter Gropius, the German leader in this movement, was "art and technique as a new unity." These pioneers recognized a new idea of order emanating from the creative forces of the modern age, and they jealously guarded it. Hitchcock says:

The spiritual problem is so high, so pure a matter, so worth solution for itself that they are unwilling to obscure the matter by trifling and incidental pandering to the bourgeois taste for representational prettiness and for reminiscent trophies of culture.<sup>13</sup>

They lived their lives in this conviction, ever testing and relating their architecture to the social, political, and mechanical progress of the world today.

Critics are agreed that the machine age has not yet reached its ultimate development and that mass-production, in comparison to its ultimate possibilities, scarcely yet exists. An architecture which is an expression of the machine age, therefore can not be mature.<sup>14</sup> The pioneers in the movement seek standards in order to develop perfection, for as Le Corbusier says, even the perfection of the Parthenon was a product of selection applied to a standard. In the beginning of every great period of architecture, standards were established by experimentation, and

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<sup>11</sup>Le Corbusier, *Towards a New Architecture* (New York: Payson and Clarke, Limited, 1927), p. 1.

<sup>12</sup>Walter Gropius, *Internationale Architektur* (München: Albert Langen Verlag, 1925), p. 6.

<sup>13</sup>Hitchcock, "Modern Architecture II, The New Pioneers," *loc. cit.*

<sup>14</sup>Norman Bel Geddes, *Horizons* (Boston, Massachusetts: Little, Brown and Company, 1932), p. 4.



likewise much of the work of the modernists must still be regarded as experimental. The culmination of the movement must lie in the future.

The origin in this second phase of contemporary architecture began, as a definite architectural expression, simultaneously in the countries of Western Europe during the early years of the twentieth century. The most important pioneer in the movement, however, was Peter Behrens of Germany. Joseph Olbrich, a pupil of Wagner also practiced in Germany. Several well-known leaders followed, each working in a slightly different manner but contributing to the common development of modern architecture. Among the most influential of these, Walter Gropius, Le Corbusier, and Ludwig Mies van der Rohe worked together in the office of Behrens, Le Corbusier later returning to Paris. Industrial buildings such as the Fagus Factory at Alfeld a.d. Lahn designed by Gropius in 1910 and some of the buildings for the Exposition at Cologne in 1914 provide evidence of the leadership of Germany before the World War. During the years following the war the greatest progress was made in Holland under the principle leadership of J. J. P. Oud who was a pupil of Berlage.<sup>15</sup>

It was not until after the war that the new movement became a conscious one.<sup>16</sup> The trying war period with its necessary emphasis upon science and engineering and the growing dependence of man upon the machine was favorable to the development of a new philosophy. Also the economic conditions existing during the reconstruction period encouraged that simplicity and discriminating selection which is an essential modern characteristic.

The new architecture was not publicized in any extensive manner until 1925,<sup>17</sup> the year in which Gropius published his first book on International Architecture. Le Corbusier had written his well-known treatise, *Vers Une Architecture*, in 1922, and in 1925 he presented to the world his Pavilion de l'Esprit Nouveau at the Paris Exposition. As will be explained later in this chapter, it was not until some five years later that there was much influence of the movement in the United States. From that time the work of the great German school, the Bauhaus, was also an important factor, especially in the field of American architectural education.

### THE BAUHAUS

The Bauhaus was originally established by Henri Van de Velde as the Grand Ducal Art School at Weimar, Germany. Walter Gropius became director in 1919 and in 1925 the school was moved to Dessau. Gropius resigned in 1928 and was succeeded in 1930 by Ludwig Mies van der Rohe. The Bauhaus was closed by governmental action in 1933.

<sup>15</sup>Taut, *op. cit.*, p. 49.

<sup>16</sup>Robb and Garrison, *op. cit.*, p. 254.

<sup>17</sup>Hitchcock, "Modern Architecture II, The New Pioneers," *loc. cit.*



*Essential characteristics.* The Bauhaus program included none of the typical educational devices of the current period. An attempt was made to return to the direct form of training of the craftsman-architect, applied, however, entirely to the conditions of today. The difficult problem of integrating imaginative design and modern technical efficiency was undertaken, the objectives of mass-production being continually observed. Since architecture is necessarily a collective art, each specific problem throughout the curriculum was regarded as an integral part of a comprehensive whole to which it must relate.

Instruction was of a very practical nature providing actual work with materials in the shops and upon buildings under construction. This was combined with courses in theory and supplemented by lectures on all branches of art and science including elementary biology and sociology. Gropius said that the guiding principle of the school was that design is neither an intellectual nor a material affair, but simply an integral part of the stuff of life.<sup>18</sup> Each student was permitted to pursue a course only in accordance with his special aptitudes and demonstrated abilities. The program was sufficiently broad to provide an opportunity for the artisan or the artist as well as for the architect. Those who evinced during the first two divisions the special abilities required for the practice of modern architecture were eligible to enter the final part of the curriculum.

*The curriculum.* The curriculum was composed of three divisions.

1. The preparatory course. Of six months duration, the preparatory course was essentially a preliminary trial period. Admission was based upon probable aptitudes judged by specimens of the student's work. It embraced an introduction to all branches of the Bauhaus program. Association with any kind of "style" was studiously avoided, and the manual and the more formal subjects were taught concurrently. The objective was to develop the student's creative powers and enable him to grasp the physical nature of materials and the basic laws of design.

2. Technical instruction. The student's entrance into the second portion of the curriculum depended upon his personal capacity and the quality of his work. At this stage, an attempt was made to approximate the old form of apprenticeship methods. The student was assigned to that portion of the shops for which he was thought to be prepared. He was introduced first to the use of simple tools, then more complicated ones with their application. Practical instruction was greatly emphasized and the student was encouraged to "come to terms" with the machine, and led to a comprehension of the intrinsic stamp which each machine gave to its product. He created type forms that would meet all of the modern technical requirements. He came into close contact with the

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<sup>18</sup>Walter Gropius, *The New Architecture and the Bauhaus* (New York: Museum of Modern Art, 1936), p. 59.



industrial concerns in which he received a superior degree of technical knowledge. In its shops the school engendered a sense of the importance of economy and personal efficiency. This led to a respect for stern realities which was held to form a strong bond between workers engaged on a common task. After three years of practical training, the apprentice was required to execute a design of his own which was submitted for approval to a panel of master-craftsmen. If the design was approved, he was given his Journeyman's Certificate.

3. The final course in architecture and construction. Only fully qualified apprentices who had grasped the coherent nature of the larger design and were able to incorporate original work of their own as an integral part of it, were held to be qualified for active cooperation in the planning and construction of buildings. The outstanding apprentices were allowed to enter the research station and the design studio attached to it. A chosen few were also given access to all the different workshops so as to gain insight into branches of technique other than their own. The practical training for cooperative work, however, was always on the scaffolding of an actual building site. Collaboration at the Bauhaus was not a matter of pooling knowledge and talents, but of contributions which each student devised and wrought himself. The successful student obtained the Master-Builder's Diploma at the close of the course.<sup>19</sup>

The Bauhaus curriculum did not provide complete instruction in the theoretical side of the more specialized branches of engineering such as steel and concrete construction, heating, plumbing, etc., or advanced statics, mechanics and physics. It was usually found advisable to permit the most promising of the students to round off their studies by attending complementary classes at various technical institutes. Each student was also encouraged to work for a time in a factory to familiarize himself with industrial machinery under actual conditions and to acquire some business experience.

#### THE TRANSITION FROM PURE ECLECTICISM TO THE SO-CALLED MODERN IN AMERICAN ARCHITECTURAL EDUCATION

Throughout the early modern movement, architectural education paralleled, in general, the advance of the practicing profession. Schools were encouraged to take each step by the experiments of a few leaders in the profession, but their work during any portion of the transitional period cannot be considered as merely a result of changes in the profession as a whole. Popular and highly publicized designs, either local or foreign, which represented an advance, were reflected as soon in the school projects as in the work of the architects. At times the influence on the schools was more immediate because of the absence in school projects of many hindering conditions in actual practice. For this reason there is no point to be gained by tracing the general movement

<sup>19</sup>*Ibid.*, p. 45.

in the profession after 1925, before discussing its counterpart in education.

*The gradual shift to the so-called Modern in school design projects.* As was noted in Chapter III, most of the important schools entered the competitions of the Beaux-Arts Institute of Design during these years; and the winning designs from the judgments were regularly published, at first in the *American Architect*, and after 1923 in the official bulletins of the Institute. The premiated designs of this national organization were selected from all parts of the country and were judged by a jury of leaders in the practicing profession as well as in the field of education. The results, therefore, constitute an unquestionable index to the progress of the modern movement in architectural education.

During the school year, 1923-24, the influence of Bertram Goodhue and his design for the Nebraska state capitol may be noted in some of the winning school projects involving tall structures.<sup>20</sup> During the following year it was discernible in designs for a few other classes of buildings. By 1924-25, however, there were examples of the influence, not only of the Goodhue type, but of that of Saarinen and the results of the set-back law. In this manner the way was prepared for the reception of the influence of the Paris Exposition architecture and the first phase of European Modern. This influence was observable in a few projects as early as 1925-26. In the following year it was much more pronounced, and the Paris version of modern architecture then became the dominant note in the work of the schools.

Although the second phase of European Modern had been well publicized in 1925, it was too radical in character to be accepted in this country until about 1928 when it may be noted as affecting a student competition for the design for a steel skyscraper.<sup>21</sup> During the following year a more general influence of the style may be observed, but it was then only partially expressed in a limited number of designs. From that time on, it increased until by 1933 it became as important in school design as the influence of the first phase of European Modern.

The progress toward a direct and honest expression of architecture which had been made in the design of factories, warehouses, grain elevators, power stations, etc. in the United States had had a positive influence in the internationalist movement in Europe. Le Corbusier calls them "magnificent first-fruits of a new age."<sup>22</sup> During the years after 1930 this natural American product became a conscious although very minor factor in the encouragement of both architects and students in the movement that was allied to the second phase of European Modern.

<sup>20</sup>Publications of the Beaux-Arts Institute of Design, 1922-23, *American Architect*, 122, 123: 34, 79, 134, 153, 215, 237, 275, 327, 367, 416, 459, 506, 557, July-December, 1922, January-June, 1923.

<sup>21</sup>*Bulletin* of the Beaux-Arts Institute of Design, 4:10-23, May, 1928.

<sup>22</sup>Le Corbusier, *op. cit.*, p. 31.



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After 1925 practicing architects, one by one, forsook pure Eclecticism for the so-called Modern. In 1929 Ely Jacques Kahn commented:

It is quite apparent in the present mood of architectural design that copying of traditional ornament, so long a most respectable procedure, is no longer acceptable. The thumbed catalogues, the well-known bookplates of the standard books, become a little more dusty as they enjoy well-deserved vacations on the architects' shelves.<sup>23</sup>

This conversion, however, was a far less radical and revolutionary process with the students who had experienced no long period of training and practice in the precepts of Eclecticism. In spite of the voiced misgivings of some instructors, the students welcomed the new expressions. In a spirited discussion at the convention of the Association in 1925, all of the delegates with one exception went on record for the acceptance and liberal encouragement of the modern tendency as an inevitable trend to be guided but not suppressed.<sup>24</sup> By the year 1926-27, even the realm of the analytiques was invaded, four of the five analytique projects of that year showing the modern tendency. By 1931-32 all of the student work was modern except in those cases where the programs definitely called for a traditional style, or those in which the problems were residential in character. Few of the students were sufficiently daring to present to a jury of architects a design in the modern manner for "A Residence for a College Dean" or for "A Residence for a Retired Monarch."

*The meaning of the early modern movement in architectural education.* The early modern movement in America had at its source no basic philosophy of architecture except perhaps in the case of a very few of its great leaders. The profession as well as education was too thoroughly saturated with the principles of Beaux-Arts Eclecticism to allow at first of any fundamental change. It was merely the superficial adoption of what has been called the "Trappings of Modernism." The novel designs of so-called modern architecture, especially those of the Paris Exposition, were intriguing, and both architects and students turned to them as a "crib" in exactly the same manner as they would have done with a newly popularized historic style. Essentially there was no difference in the process. Ely Jacques Kahn, Director of the Department of Architecture, Beaux-Arts Institute of Design, said in a note to students and correspondents in 1932:

We find a universal tendency to present so-called modern solutions in facade, and the plans suggest the same principle. What we also find, to our annoyance, is that the bulk of the work is modern merely in the fact that forms supposed to be characteristic of the new architecture are shown with little understanding

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<sup>23</sup>Ely Jacques Kahn, "Sources of Inspiration," *Architecture*, 60:249, November, 1929.

<sup>24</sup>*Minutes of the Thirteenth Convention of the Association of Collegiate Schools of Architecture*, Washington, D. C., May 3 and 4, 1926, p. 7.

of the antecedents of these forms and with little conception of the real basis of modern design.<sup>25</sup>

Three distinct early sources of the modern movement were noted above, but there was no such conscious analysis at that time. To the student as to the architect, it was all merely "Modern." Sheldon Cheney says that he believes the great pioneers in the movement were dismayed by the sudden popular conversion, and that they resented the casual manner in which many an eclectic "turned a hand" to modernistic design as merely something different.<sup>26</sup>

The new architecture in itself, regardless of misunderstandings concerning its character, was a step nearer the expression of contemporary conditions, particularly contemporary materials and structural processes. Logically, it brought forth a sympathetic response from designers as had every past style from the designers of its day. In contrasting the students' work of 1932 with that of ten years before, there is found an obvious increase in vigor and brilliancy; this is accompanied, however, by a corresponding decrease in that refinement which came from copying the most mature works of past periods.

Spectacular though the shift to a modern style of design may have been, it did not represent the great contribution of this transitional period in American architectural education. The most important result was the breaking of the bonds of a generation of Eclecticism.

*The shift from standardization to experimentation.* The American architect, having forsaken his comfortable philosophy of plagiarism, came to the realization that he was floundering. At first, as a defense mechanism for his heresy, he began to reason more deeply about architecture. His dissatisfaction and unrest increased. Architectural education in like manner was forced to evaluate its methods and to attempt a readjustment in the preparation for contemporary practice.

It should be understood that, while the curricula and the philosophy of teaching of Beaux-Arts Eclecticism had been crystallized, the schools remained far from actual conformity in details. They were still departments of American universities, all of which had developed along more or less individual lines. In the older schools traditional methods of instruction had taken form through the early years, and these could not be entirely overcome. Also, especially in architecture where so much depends upon the qualifications of the staff and the attitude of the student body, many of the essential qualities of the schools were not to be measured by the terms of any standard. The check of the programs of member schools by the Executive Committee of the Association in 1928 disclosed such a variation in curricula as to make it "a very

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<sup>25</sup>Ely Jacques Kahn, "Notice to Students and Correspondents," *Bulletin of the Beaux-Arts Institute of Design*, 8:1, May, 1932.

<sup>26</sup>Cheney, *op. cit.*, p. 375.



puzzling situation."<sup>27</sup> By that time the schools had practically abandoned any attempt to apply literally the provisions of the standard minima in considering new members, and in 1931 these traditional standards were abandoned. The most important results of the survey of 1930-31 by the Association of Collegiate Schools of Architecture was the discovery of challenging divergencies which gave promise of a better approach to the present-day problems of architectural education.<sup>28</sup> Bosworth said in a discussion of the survey:

More and more as we progressed on our travels and study we came to the conviction that whatever the present failings of the schools may be, their present state for the most part is one of experimentation and change. The profession of architecture itself is in a state of flux; its traditional status is challenged by new social, economic, and scientific developments, and its eventual adjustments to them may well involve radical changes. The schools cannot escape the consequences of this ferment. The progressive ones are even now adjusting themselves to new circumstances and new objectives. They need time to arrive at significant solutions.<sup>29</sup>

Thus, instead of the ideal of standardization of Eclecticism, the ruling principle in architectural education gradually changed during the early modern movement to experimentation.

*The effects of the economic depression after 1929.* The period of depression effected a general quickening of the experimental readjustment processes. The dire straits and the confusion of the profession and the hopelessness of the graduates, as well as the forced economic restrictions within the schools, tended to urge educators to forsake much of their idealism for more sincere realism and to press forward along any course which gave promise of improvement. Since the objectives in the practicing profession were not clear during these years, the task was two-fold. It was necessary not only to search for new educational processes, but to attempt to discover the logical position which the future architect might hold in society toward which these processes should be directed.

*The beginning of the movement toward a new education in preparation for a changing professional practice.* As would be expected under the circumstances which have been outlined above, there was at first little agreement among the various educational experiments. Some of the schools held essentially to the traditional program, modifying only certain emphases in accordance with the modern tendencies. Other institutions attempted a radical change in their entire educational procedures. Much was written, but these writings tended to become what Robert Kohn called word mongering and exhibitionism. The following

<sup>27</sup>*Minutes of the Executive Session, Fifteenth Annual Meeting of the Association of Collegiate Schools of Architecture, St. Louis, Missouri, May 14, 1928, pp. 2, 3.*

<sup>28</sup>*Report of the Proceedings of the Nineteenth Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D. C., April 25, 26, 1932, p. 16.*

<sup>29</sup>*Loc. cit.*



chapter sections, then, are of necessity limited as follows: first, to an outline of the conditions which indicate what shall be the requirements of future practice in the United States; second, to a brief summary of important early experiments conducted by some of the individual schools; and third, to an analysis of the basic factors which seem significant in the gradual formulation of a new type of training designed to meet, as far as the function of collegiate education is concerned, the future needs of the profession in this country.

#### IMPORTANT CONDITIONS UNDERLYING THE TRENDS IN CONTEMPORARY PRACTICE OF ARCHITECTURE

Changing conditions in the field of architecture and architectural practice are grouped in the following outline under the categories of those general sources which are recognized to have been basic in the development of every great architecture.

*New social and economic factors.* Fundamental in determining the trends in contemporary practice have been certain social and economic factors.

1. The results of scientific and engineering achievements now make it possible for all men to enjoy increasingly high standards of living and opportunities for culture. The great problem of modern economy is no longer one of production, but of distribution of wealth in order that greater numbers of people may be enabled to live in accordance with these present-day standards of health, leisure and wholesome social intercourse.<sup>30</sup> A broad social crisis is involved which demands a reconstruction of the entire mental and spiritual life of society.<sup>31</sup>

2. There is a new emphasis upon the improvement of living in general with an increasing valuation upon comfort, contentment and obedience to the laws of both physical and mental hygiene. In accordance with these requirements and ideals of living, the necessity of improving the design of the present-day dwelling is coming to be realized. Also, the importance of environment is now being recognized in all places of work where a large proportion of human beings spend the precious active hours of the day and where the question of fatigue is an economic factor.

3. Social changes are making possible an increasing amount of leisure for all classes of people.<sup>32</sup> They are not however, yet prepared profitably to enjoy this relief from labor, and architecture as well as the minor arts will constitute a very important factor in the gradual cultural readjustment.

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<sup>30</sup>Lewis Mumford, *The Culture of Cities* (New York: Harcourt, Brace and Company, 1938), p. 464.

<sup>31</sup>Rudolf Rucker, *Nationalism and Culture* (New York: Covici Friede, 1937), p. 520.

<sup>32</sup>Charles Beard, *Toward Civilization* (New York: Longmans, Green and Company, 1930), p. 28.



4. The capitalistic world contains millions of people who are existing without the means of satisfying the elementary needs of life. The housing movement is one of the most vital problems and the focal point of our changing economy.

5. The city of today, developed for the most part according to pre-automobile standards and the dictates of unbridled private profit, is from every standpoint inadequate for modern life and the entire reconstruction will be necessary.

6. A revaluation of the city is being made from the point of view of its social aspects, recognizing the importance of the drama of collective activity and the necessity of providing the right social opportunities for the individual in every class.<sup>33</sup> In order to foster personal reintegration with the social group, the poly-nucleated city plan is being studied, the size of the nucleus being determined by the function in social relationship being served.

7. Ease of transportation by automobile is tending to dissolve the urban community into the surrounding country. Because of the absence of adequate control, this change in conformation has until very recently been along lines that are detrimental to the city as a whole.<sup>34</sup>

8. A new regional order is now imminent necessitating the regional plan. This plan is not determined by abstract political boundaries, but by those functional, geographic, economic and cultural forces and associations which center within the district.

*New materials and scientific processes of construction and building equipment.* New materials and building methods always greatly effect the character of an honest development in architecture.

1. Steel and reinforced concrete, with the intricate science of architectural engineering that is involved, have become the almost universal structural materials for permanent buildings other than the single-unit residential types.

2. The advance in engineering science, machine techniques and transportation facilities in industry has led to the production of a large number of new architectural and decorative materials. Also many new forms of scientifically prepared old types of materials are available.

3. Many highly specialized sciences and trades provide and install the elaborate and varied types of building equipment required for modern sanitation, comfort and convenience.<sup>35</sup>

<sup>33</sup>Mumford, *op. cit.*, p. 481.

<sup>34</sup>S. Howard Patterson and Karl W. H. Scholz, *Economic Problems of Modern Life* (New York: McGraw-Hill Book Company, 1937), p. 362.

<sup>35</sup>Emory Stanford Hall, F.A.I.A., "Our Objectives," N.C.A.R.B. Document No. 22. Paper read before the Fifteenth Annual Convention of the National Council of Architectural Registration Boards, Old Point Comfort, Virginia, May 4, 1936, p. 3.



4. There is an increasing tendency toward standardization and mass-production in all structural and decorative features of the building. Also present-day machinery makes possible factory prefabrication of increasingly larger units.

*The new theory of design.* Basic to contemporary trends in architecture is the new theory of architectural design.

1. Progressive designers have become conscious of the aesthetic possibilities of the exact modern arts; even popular favor has begun to substitute the precision of mechanically perfect workmanship for the "artistic" hand-tooled effects of the previous period. There is a psychological basis for this love of the so-called Modern in design, for motifs like the airplane or the streamline quality express to the mind the romance of conquering natural elements that heretofore have so limited man. These logical, powerful lines quickly catch the imagination.

2. Instead of a hindrance to creative art, the intellectual element involved in the exact thinking, analytical calculations, and precise methods that are predominant in a scientific machine industry is to be regarded as a basic factor qualifying the attitude of mind of the designer. It should lead directly to that quality in architecture called "Modern." Also, through continual contact with labor-saving machines, new concepts of order and economy are being developed. The best industrial architecture demonstrates the new vitality which is the outcome of clarity of thought and acceptance of essentials. It has cleared the way toward a form of design that is truly expressive of this great civilization.<sup>36</sup> There is now an increasing tendency toward a normal and logical synthesis of engineering and art, usefulness and capacity for aesthetic satisfaction, which is one of the fundamental aesthetic trends of this time.<sup>37</sup>

3. In line with the spirit of the scientific age, economy has become one of the regulating principles of architecture whether it be in the building plan, the materials and structure, equipment, decorative details or the aesthetic expression in general. The scarcity of labor and the abundance of raw materials in the United States constitute a basic condition peculiar to this country which should produce a relatively more liberal use of expensive materials, but more simple form and plainer details.<sup>38</sup>

4. There is a new interest in color in American architecture, not only because of the growing appreciation of good creative contemporary art, but also because of the function of color in connection with comfort and

<sup>36</sup>C. G. Holme, *Industrial Architecture* (London: The Studio Publications, 1935), p. 13.

<sup>37</sup>Beard, *op. cit.*, p. 33.

<sup>38</sup>Julius Klein, *Business*, Chapter IV, *Whither Mankind*, Charles Beard, editor (New York: Longmans, Green and Company, 1928), p. 99.

mental hygiene in living. Color is the mark of happiness and joy and is one of the greatest sources of aesthetic pleasure.<sup>39</sup> Modern science has provided a great palette range with color materials fitted to meet every requirement.

5. From an aesthetic standpoint the mass-production processes inevitable in a scientific order demand an emphasis upon standard generic forms that are free from the superfluities and the imaginative caprice of the individual.

6. Although the machine age is producing its new and significant aesthetic forms, yet, with the coming of more leisure, the personal arts are again beginning to flourish. Where these are encouraged as normal creative expressions of the individual who is in tune with the spirit of his own time, and not as romantic attempts to copy the handicraftsmanship of the past, the products harmonize successfully with the factory-made, mass-produced surroundings. This is but an aesthetic counterpart of the fact that collective life today needs a background which is more standardized and a foreground which is more individualized.

7. The ancient tradition of the collaboration of architecture and the allied arts is being revived. The increase in state support of painting and sculpture has both greatly stimulated these arts and encouraged a closer relationship with the mother art.<sup>40</sup> Because of the vital contemporary movement in the allied arts, they tend to harmonize with the modern spirit and through a close integration in design, in turn, to influence the developing concepts of the new architecture.

*Principles of a new American architecture.* The basic principles of contemporary architecture in the United States, agreeing for the most part with those noted under the more mature phase of European Modern, may be clearly defined.

1. The light rigid steel or reinforced concrete frame or cage enclosed with thin curtain walls and large expanses of glass has led to an entirely new concept in the treatment of space. Instead of an architecture of mass there has evolved an architecture of volume. The new emphasis upon approaching architectural composition from the standpoint of the exacting modern requirements as a regulating principle, and then proceeding outward, has also led to the concept of architecture as enclosed working space.

2. The hurried, complicated and distracting life of today calls for a quiet and serene type of architecture. The tendency to live openly, expressed by large expanses of glass, also has its counterpart in the characteristic trends of the business and the social world.<sup>41</sup>

<sup>39</sup>Claude Bragdon, *Architecture and Democracy* (New York: Alfred A. Knopf, 1926), p. 49.

<sup>40</sup>Grace Overmyer, *Government and the Arts* (New York: W. W. Norton and Company, Inc., 1939), p. 33.

<sup>41</sup>Bragdon, *op. cit.*, p. 44.



3. Truly contemporary architecture demands a structural form which accords with that distinctive characteristic of life today—its rapidly changing conditions. Instead of mass and permanence, the ideals for most types have become flexibility, adaptability and renewability. This does not infer that architecture need be flimsy, but that there is a search for constants with a wider range of variability. Along with the ease of transportation even the dwelling has changed. It is no longer regarded as a place that will last forever or where man anticipates spending his entire life. This modern quality of flexibility of plan in connection with an architecture of light volume rather than formal mass has led to the new concept of “flowing” space.

4. There has been a natural overemphasis upon the machine in early modern architecture. As the period matures, however, there is a tendency to conceal mechanical features expressing their presence and importance by more subtle means. One of the most difficult tasks of the architect is to correlate the items of equipment and reduce their proportions in such a manner as to allow for effective functioning of the building.

5. In domestic architecture there is a new insistence upon provision for that individual privacy which a well-ordered present-day life requires. Many scientific equipment features are now available for use to this end.

6. The crowding of densely populated urban centers with the excessive mechanization of life is awakening a new longing in man to be closer to nature. The essential architectural character of the dwelling is tending to be less that of protection from the elements and more that of opening out to the out-of-doors. Open terraces and broad expanses of window areas leading from the less private portions of the house are indicative of this trend.

7. In accordance with the new ideals of living, the dwelling house of pre-automobile periods tends to be reversed. Instead of the ostentatious front, the garage and service portions conveniently face the noisy and dangerous street while the living quarters turn to the pleasant seclusion of the garden.

8. Present-day civilization is of a world order and world-wide forces are increasingly reflected in modern architecture producing a so-called “international” characteristic, referred to previously, yet international architecture as a distinct expression is impossible. There will always be regional differences in those factors that are basic to architecture. While science and the machine have changed many primitive differences, more profound ones especially in the economic and industrial fields have emerged.<sup>42</sup>

9. Certain characteristics peculiar for the most part to American contemporary architecture may be noted. Due to the long period of discipline in pure eclecticism, most architects in this country are still

<sup>42</sup>Mumford, *op. cit.*, p. 313.

conscious of their own heritage from the past. The more progressive groups no longer copy or attempt merely to modernize traditional historic forms. There is, however, a sound tendency to search for refinements and humanizing accents of abstract ornamental motifs entirely in the true spirit of the machine age, but born of the precepts and inspirations of past periods. The American love for the picturesque, inherited from old English charm, has not yet been outgrown in certain classes of buildings, especially the domestic types.<sup>43</sup> On the other hand, the urge toward the classic monumental has but slightly diminished in certain other types.

10. Although there are many examples of good contemporary architecture in this country, the movement as a whole is still in the realm of ideas. With greater collective encouragement of society, the stage of real achievement should follow and there is now positive evidence that this machine civilization is becoming aware of the real values inherent in its processes. A collective consciousness of the new aesthetic ideal and a sound appreciation for creative, modern American art is gradually and surely evolving. Claude Bragdon has said that beauty should inevitably shine forth from the architecture of a true democracy founded upon mutual service, and that current nation-wide efforts to correct social and economic maladjustments of our civilization form an encouraging indication.<sup>44</sup>

*New conditions and requirements in professional practice.* Changes in social and economic problems have greatly affected the professional practice of architecture.

1. Conditions during the last one hundred years both within and without the profession have led to the decline of the prestige of the architect. The turmoil and confusion of the social order has become reflected in the lack of clarity as to his rightful place in present-day society and as to his proper relation to the other agencies engaged in the building industry.

2. There is now a tendency for the architect once more to direct the entire building project, somewhat as he did in the great periods of the past. He is not only responsible for the plan and exterior, but also for the general character of the interior design, the furniture and the highly specialized mechanical features of equipment throughout the building. This is a necessity if modern architecture is to present an integrated and harmonious whole in composition.

3. With the increasing necessity for collective enterprise, as against the independence of the individual, in a scientific, industrial civilization, opportunities for extensive private practice have diminished.<sup>45</sup> The cur-

<sup>43</sup>Robb and Garrison, *op. cit.*, p. 264.

<sup>44</sup>Bragdon, *op. cit.*, p. 6.

<sup>45</sup>Bertrand Russell, *Science*, Chapter III, *Whither Mankind*, Charles Beard, editor (New York: Longmans, Green and Company, 1928), p. 78.



rent issue between the government and the private architect in the public building program is one of the results of this changing status.

4. Governmental regulations regarding the right to practice and the requirements for obtaining the license are becoming increasingly rigid and important. The responsibility of the architect for safety and comfort and the need for protecting him against unfair competition after the long period of preparation for practice are now more fully recognized.

5. Since buildings constitute the essential part of man's immediate environment, it is obvious that architecture should be an important factor in the gradual revamping of modern civilization. If the practicing architect is to assume his rightful role, however, he must be prepared for more realistic usefulness to contemporary society. He must be able to solve its problems thoroughly and brilliantly as the architects of the past cared for the needs of their own day. It will be necessary for the architect to be better equipped to create that concrete and visible whole which will form the essence of the social nucleus of the new city. He must develop a greater sense of the broad urban and regional framework in his compositions and be prepared to take an active part in the conflict with the retarding influences of the present basic pattern of metropolitan economy. He must be able to collaborate with governmental, scientific, medical, and health experts. He must be versed in the niceties of present-day requirements and desires, holding the limitations encountered as the real source of vital creative architecture. Finally it will be necessary for the architect to understand the real nature of the modern materials and machines when put to human use so that he can plastically interpret them as he moulds man's environment closer to his new ideals.

#### SIGNIFICANT EARLY EXPERIMENTS CONDUCTED IN INDIVIDUAL SCHOOLS

Comprehensive pioneer experiments were made in certain of the more progressive American schools in different phases of the readjustment of architectural education to the changing requirements of contemporary practice. These were of importance, for they provided a precedent for subsequent developments in the movement. The experiments selected as significant are briefly described in this chapter section. There were many additional, less influential and minor experiments, but these will be noted in later chapter sections under the topics with which they were respectively concerned.

*The University of Oregon experiment.* The School of Architecture and Allied Arts at the University of Oregon was the first American school to abandon the traditional Beaux-Arts methods. This was accomplished during the years immediately following the close of the World War, under the guidance of Ellis F. Lawrence, then dean of the school. The readjustment represented a very positive break with current educa-



tional processes and has since formed the basis for several similar experiments in other schools. The reorganization effected may be resolved along two general lines:<sup>46</sup>

1. The competitive system in the major subject of design was completely abolished. Individual design projects were carefully prepared on the sole basis of the student's individual needs and interests. The confusing elements of judgments and the resulting pressure of a competitive system were removed so that each assignment became a personal experience. Library research and copying in design was discouraged, and the student was given freedom to experiment and create to the best of his talents. Errors were pointed out by the instructor, but the traditional objective of presentations was not emphasized, the results being, in so far as possible, products of the student's own abilities.

2. Other schools of architecture have been organized in connection with departments of the related arts, but the University of Oregon was the first to establish a positive program of collaboration. It was the conviction that the architect should be familiar with the standards and processes of painters, sculptors, designers, and craftsmen and that they in turn should appreciate the problems of the architect whose art they often serve.<sup>47</sup> Not only were the students in architecture, fine arts, and the allied crafts encouraged to mingle freely in the school studios, but, whenever possible, collaborative projects were undertaken. These problems were usually very realistic, and several have been actually executed cooperative projects upon the campus. The individual non-competitive character of the system has often been a factor in the success throughout the years of the University of Oregon collaborative plan.

*The Yale University experiment.* During the early years of the administration of Dean Everett V. Meeks at the Yale University College of Fine Arts beginning in 1919, a collaborative plan was developed between the departments of architecture, painting and sculpture, as previously noted in Chapter III. These allied departments were of equal rank and strength although the enrollment in sculpture was relatively small as would normally be the case. The educational policies of the three divisions were also in accord, so that the college afforded unusually favorable facilities for such interrelationship.<sup>48</sup>

Regular programs of collaboration were held at a definite period each year. Since, however, architecture was housed in a separate building, there was not much natural intermingling of the students to support the

<sup>46</sup>Ellis F. Lawrence, "The School of Architecture and Allied Arts," (unpublished typewritten brochure, University of Oregon, n. d.).

<sup>47</sup>Lawrence, *loc. cit.*

<sup>48</sup>Everett V. Meeks, Discussion on the Principles of Collaboration. *Minutes of the Fifteenth Annual Meeting of the Association of Collegiate Schools of Architecture*, St. Louis, Missouri, May 14-15, 1928, p. 20.



formal effort. The great contribution of the Yale plan was the strong precedent which it established through the years in this phase of the modern movement.

*The early Cornell University experiment.* Cornell University was the first school to revise completely the freshman year architectural design program, the experiment dating from 1929, under the general direction of F. H. Bosworth, Jr. The beginning student was started upon the design for a complete building instead of the traditional elements of architecture. This new procedure involved a difference in point of view regarding the fundamental principles of architecture.<sup>49</sup> The then common method with its origin in the Beaux-Arts-Renaissance tradition stressed the external decorative phases of architecture by centering the student's attention on them in his early formative years, while the new method emphasized the primary concern of architecture with the organizing and proportioning of enclosed spaces for human need, which is the basic principle of the modern movement.

*The University of Cincinnati experiment.* As an extension of the cooperative system developed successfully by Herman Schneider, Dean of the College of Engineering at the University of Cincinnati, the architecture program was placed on that basis at the time of its establishment in 1922.<sup>50</sup> Under the direction of the head of the architectural design division, Ernest Pickering, the plan was adjusted to the needs of the architects. After the freshman year, which was similar to that in other schools, the students were divided into two groups, one alternating with the other at four-week intervals between university and field work. While the students were paid directly by the industries, earnings were not the chief objective. The outside work was organized upon the basis of educational values. As far as the extra-campus conditions would permit, the work followed a carefully arranged sequence of types of experience from labor on construction jobs, through various contacts with materials and the allied crafts, to practice in an architect's office. In this manner, the two necessary branches of the complete training for the practice of architecture, the foundation in school theory and the office experience, were effectually coordinated and integrated.<sup>51</sup>

Another feature of the department of architecture which should be noted was its affiliation with the closely allied arts and crafts. The first two years of all the applied arts curricula were as nearly identical as possible with those of architecture. The architecture students were

<sup>49</sup>F. H. Bosworth and Roy Childs Jones, *Study of Architectural Schools* (New York: Charles Scribner's Sons, 1932), p. 44.

<sup>50</sup>Herman Schneider, "New Cooperative Courses in Architecture and the Applied Fine Arts at the University of Cincinnati" (Reprint from the *American Architect and Architectural Review*, January 16, 1924), p. 2.

<sup>51</sup>*Ibid.*, p. 4.



taught the fundamentals of these other arts and worked in close contact with the creative efforts of those specializing in the allied fields.

*The University of Southern California experiment.* Since 1930 an experiment has been conducted at the University of Southern California under the general direction of the author, the important features of which may be summarized as follows:

1. A prolonged experiment has been conducted in an attempt to discover a more successful modern approach to the study of design in which the beginning projects were based upon very familiar situations that lower division students were able to comprehend. The students worked first by means of models and then were gradually led to graphic expressions. Paper techniques, however, were never stressed. In this manner, habits of visualizing three-dimensional forms and proper attitudes toward the study of architecture were established early. Any reference to traditions was postponed to the more advanced years after the student had first experienced some contact with the subject of history of architecture.

2. All project programs were written around local situations and the greater portion of the advanced projects were made very realistic, being carried to the working drawing and office detail stage. The requirements of building finance were also occasionally included in the study. On the other hand, as a balance to the more realistic studies, a portion of the projects were arranged primarily as dramatic and colorful presentations. Here the advanced student was encouraged to attempt large conceptions in original composition, carrying them as far as the limits of his imagination would permit. The basis for this feature of the experiment was the assumption that there is a need in modern practice for the designer possessing a daring and well-developed imagination and the technical skill to express it, provided these attainments are combined with a thoroughly disciplined sense of realism.

*The University of Kansas experiment.* At the University of Kansas, an experiment has been in progress since 1932 under the direction of the head of the Department of Architecture, Joseph M. Kellogg.<sup>52</sup> The most significant feature was the reorganization of the courses in lower division design.<sup>53</sup> Design was begun in the freshman year by the study of three-dimensional abstract architectural forms using plastic models and perspectives. After the first studies in general volume and mass, the student was led to simple block-plan projects of a more realistic nature. During the early years especially, the element of competition was minimized, the emphasis being upon individual study rather than upon presentations for a class judgment.

<sup>52</sup>Announcement of Courses, University of Kansas, 1932-33, p. 11.

<sup>53</sup>Thomas Larrick, "A Modern School of Architecture," (unpublished Master's thesis, University of Kansas, Lawrence, Kansas, 1932), p. 73.



*The early Columbia University experiment.* Under the direction of Joseph Hudnut, the School of Architecture at Columbia University abandoned the traditional teaching methods in 1934. A complete readjustment was attempted in the major professional course in design as well as in the relation of this subject to other divisions of the curricula.<sup>54</sup> In its emphasis upon the development of the student in technical phases of design rather than in skill in graphic presentation, the new system was similar to that of the German technical high schools. In fact, the underlying principles were essentially those of the modern German movement.<sup>55</sup>

Not only was the reorganization of the methods of the school a comprehensive one, but its basis lay in predictions as to the future requirements of American practice, the essentials of which were rapidly changing. It seemed, therefore, to be impossible to determine an immediate solution regarding either objectives or educational processes. For this reason the student body was divided into three groups, each under the direction of a Master. Each Master then undertook within his small group, and with the assistance of such experts in allied fields as were needed, to work out a successful plan of instruction in accordance with the general scheme of the school.

The experiment may in general be resolved along the following lines:

1. The study of design was made highly realistic. The subject matter was based upon actual conditions which maintain in present-day practice, and the methods and general atmosphere of the classroom were made to approximate, as nearly as possible, those of the architect's office. A study of the construction of the building and the financial factors were integrated with design. The problem system was retained, but in the major projects the element of competition with its attendant artifices and arbitrary academic standards was eliminated. After the first year, each individual program was devised by the Master or by the student himself, with a complete statement of the actual conditions of such a project in practice. The preliminary studies in the form of sketches, models, written description, or all three, were made under the direction of the Master and with guided research. The study period was of undetermined length and the project was finally presented as a carefully executed model and drawings or as a set of drawings. There was no judgment and the progress of the student was estimated by the Master by taking into account the work done during the entire project. Eight-hour competitive group sketch problems were given every two weeks. These sketch problems were in the nature of periodic examinations rather than mere exercises in grasping and presenting a quick solution of an artificial program as was true of the Beaux-Arts *Esquisse-esquisses*.

<sup>54</sup>Joseph Hudnut, "Report of Dean Hudnut, June 30, 1934," *The Architectural Forum*, 62:166, 168, February, 1935.

<sup>55</sup>*Ibid.*, p. 168.



2. Design was made primarily a sustained creative process developing in a natural and logical manner an aesthetic expression thoroughly integrated with the instrumental qualities of modern materials, scientific structural techniques, building finance and the varied practical requirements of life today. In the words of Dean Hudnut, beauty was to remain the transcendent aim of architecture, but not unallied to severe utility.<sup>56</sup>

*The Harvard University experiment.* In the reorganization at Harvard University in 1935, under the direction of Dean Joseph Hudnut, it was recognized that a graduate school afforded a greater opportunity for the successful development of the type of educational program which was contemplated. The freedom from required preliminary academic studies and the maturity of the students were both important contributing factors.

Two professional curricula in architecture were offered, one for graduates of liberal arts colleges leading to the degree of Bachelor of Architecture, and the other for graduates in architecture leading to the degree of Master of Architecture.<sup>57</sup> To be admitted to the first curriculum without conditions the student must have completed the normal requirements of a four-year professional course in architecture in the following subjects: history of art and architecture, freehand drawing, mathematics, physics, and economics, as well as two courses in general design. The curriculum was normally one of three years' duration. The student's time was relatively free throughout this period for the effective study of architectural design. The courses were organized to provide a broad and sustained experience thoroughly integrated with the study of the basic factors of conditions in modern design, leading in this manner to a logical contemporary architectural expression. In addition to design, the only requirements for the degree were the closely related courses in the science of construction and equipment, and professional practice, with a year of drawing from life and modeling.

The curriculum for graduates in architecture was composed normally of one course of one year's duration. This course was architectural design. Organized in much the same manner as the design courses in the other curriculum, it was more comprehensive. The students were expected to devote all of their time to it, and the projects were developed and presented as complete operations in actual office practice. The entire procedure of this professional graduate program was arranged in so far as possible like that in the office of an established architect.

This experiment laid the foundation for the ensuing contributions of Walter Gropius when later he was called to Harvard University.

<sup>56</sup>*Ibid.*, p. 167.

<sup>57</sup>Official Register of Harvard University, 1936-37, (Cambridge, Massachusetts: The Graduate School of Design, 1936), p. 22.



READJUSTMENTS IN THE GENERAL EDUCATIONAL  
PROGRAM IN ARCHITECTURE

Very few of the schools of architecture in the United States have been satisfied to continue entirely intact the traditional system of education. The increased many-sided requirements of contemporary practice demand both a broader and a more intense preparation. In most cases the five-year course constitutes the maximum period available for the school training of an architect. The only alternative, therefore, must lie along the line of devising more effective educational processes.

One heritage from the École des Beaux-Arts, the individual method of project study, has been held to be sound by all educators and worthy of being retained. There is no tendency toward mass-teaching. As Ellis F. Lawrence has said, the school of architecture should be like an ideal community organized along the democratic lines of a congenial home. The Beaux-Arts emphasis upon what the student does in his own way at his own time is still the strength of the school of architecture. Warren P. Laird said at the time of his retirement:

His [the student's] natural endowments must be discovered and brought to full strength if he is to be properly started by the school toward the best degree of professional success of which he is capable. This is the most difficult and delicate of the school's functions.<sup>58</sup>

Educators believe then that the self-reliance and sound judgment needed in the practice of architecture can best be developed only by an individual method. All other general features of the educational system as it developed during the period of Eclecticism, demand revision.

The significant features and implications in the many different experimental programs throughout the latter part of the modern period have been organized into three major groupings. In this chapter section those elements relating to the general educational program are considered.

*The survey of architectural education in America by the Association of Collegiate Schools of Architecture.* The chief interest of the Association during the early years was, as noted in Chapter III, the raising of the general level of architectural education in this country to comply with its standards. This interest naturally led to a desire for a thorough nation-wide investigation of existing conditions among the schools. In 1919 it was resolved that the Carnegie Foundation for the Advancement of Teaching be requested to make such a survey. From this time on, the proposed survey became almost a yearly topic for discussion by the Association, and the request was repeatedly renewed with the Carnegie Foundation. In 1928 the Executive Committee was directed to take definite steps toward securing such a survey and a conference was held with Carnegie Foundation representatives in 1929. Definite plans were laid by the Association in 1930, and F. H. Bosworth, Jr. and Roy

<sup>58</sup> *Report of Proceedings of the Nineteenth Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D.C., April 25, 26, 1932.*



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Childs Jones were appointed to carry out the project. During the years 1930-31, the survey was conducted as "A Preliminary Survey of Architectural Education." The purpose, as originally stated, was:

To obtain a bird's-eye view of architectural education in this country and Canada and to determine from that bird's-eye view the possible value of a more complete study.<sup>59</sup>

The representatives visited fifty schools of collegiate rank, which included all of those offering professional courses in architecture of any importance in the two countries. High schools and trade schools were, of course, omitted. Discussions with interested members of the profession outside of the schools were also included. The report of the survey was submitted to the Carnegie Foundation and to the Association by Bosworth and Jones in the spring of 1932 in the form of *A Study of Architectural Schools*.<sup>60</sup> They recommended that, due to the conditions at the time, any more detailed study of conditions be postponed for several years.

The major result of this study was the discovery that most of the schools were in a state of individual experimentation and change, and that a healthy spirit of initiative in an attempt to find a solution for the new problems was developing in the more progressive institutions. As Bosworth stated in his report to the Association:

We have an impression that the outstanding accomplishment of the present study has been to stimulate thought and discussion and a curiosity of what the other fellow is doing.<sup>61</sup>

*New policy of the Association regarding criteria by which the effectiveness of a school of architecture is measured.* Largely as a result of the survey, the Association abolished the increasingly troublesome standard minima. The acceptance of the principles as summarized in these findings cleared the way for a new policy, which was presented at the annual meeting in 1932 and adopted by the Association. This was in the form of a report by the Executive Committee to the Joint Conference of the Association, the Education Committee of the American Institute of Architects, the National Council of Architectural Registration Boards, and the Beaux-Arts Institute of Design. The following excerpts state the criteria by which the effectiveness of a school was to be measured:

Approval of an eligible institution (a school or department of architecture in an institution of collegiate rank) applying for membership in the Association shall be based upon a determination of its capacity to train candidates for the profession of architecture as evidenced by a report of the Executive Committee on the institution, made by selected representatives, who will personally visit and inspect the institution applying. The expenses of this visit are to be paid in advance by the applying institution.<sup>62</sup>

<sup>59</sup>*Ibid.*, p. 15.

<sup>60</sup>*Loc. cit.*

<sup>61</sup>*Ibid.*, p. 16.

<sup>62</sup>*Ibid.*, p. 25.



In making their report the Representatives of the Association were to consider the following items:

1. Faculty
2. Budget
3. Organization
4. Curriculum
5. Entrance requirements
6. Library and equipment

This statement of future policy formed the definite culmination of one phase of the movement toward the readjustment of architectural education to present-day conditions. It emphasized the following principles:

1. The importance of qualitative rather than quantitative methods of evaluation. The policy merely specified essential items upon which judgment was to be based, and in this judgment potential as well as actual values were to be considered.

2. While its provisions encouraged a further development along previously established lines, by abolishing fixed standards, it also encouraged experimentation as each individual school attempted to readjust its course to the changed conditions in the profession and to the needs of the community in which it was located.

3. This new policy made possible the future pooling of experience from the different schools which, it was held, should be a most important factor in the development of the new architectural education.

*The unification movement in architectural education.* The 1931 Convention of the American Institute of Architects marked the launching of a movement toward consolidating all professional organizations in the field of architectural education. Ways and means of better correlating and unifying the activities of educational agencies became a central theme of the following Association meetings. In connection with the 1932 annual meeting there resulted the first joint conference of the Association, the National Council of Architectural Registration Boards, the Educational Committee of the American Institute of Architects, and the Beaux-Arts Institute of Design. At this conference there was established a joint council, called The Advisory Committee on Preparation for the Practice of Architecture. The three national organizations, noted above, are now equally represented in the membership of the committee, with one additional member to represent the interests of the schools which are not members of the Association, as well as one from the Beaux-Arts Institute of Design. Leaders in educational thought throughout the profession hold that, by means of this organized collaborative effort, there may be gradually created a more thoroughly integrated and coordinated program of training from the freshman year of the architectural school to the period of certified professional practice. They believe that, through a system of national scope and authority, it may be possible to allocate the schools, regardless of widely varying resources



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and operating conditions, to roles in which each can achieve high educational standards, and to guarantee to every graduate in architecture a sound preparation for later practice.

Certain specific issues have developed in connection with the unification movement in architectural education, the most important of which is the creation of a permanent accrediting authority.

*A National Architectural Accrediting Board.* While there are several agencies which regularly utilize an accrediting list, the most urgent need for one has been in connection with the work of the State Registration Boards. Architectural registration laws have been evolved during recent years in all but eight of the states,<sup>63</sup> and their regulations have nearly always involved the establishment of a list of accredited schools for use in judging the training qualifications of candidates for the state license. In many cases the question has been referred to the American Institute of Architects, but, except for the few states that make their own classification, the final basis has been membership in the Association.<sup>64</sup> These registration procedures have delegated to the Association a responsibility it has never intended nor been adequately prepared to exercise. In spite, however, of the persistent disclaiming of this responsibility, there has been up to the present time no other general accrediting basis, and the profession has continued to use it.

In 1937, the Association began a comprehensive program of examination of member schools. A questionnaire, known as Report Form B, was circulated and the results of the survey tabulated. Those institutions that apparently fell below the acceptable standards, in accordance with the Association's current criteria, were to have been visited for a further check on the ground. This visitation of deficient schools was, however, not undertaken. It was found that the information provided by the Form B survey was not adequate, and that the technique required revision. In 1938, a new questionnaire, Form C, was circulated among non-member as well as member schools. The returns were then analyzed and charted on the basis previously developed in connection with the Form B survey.

It was evident that the factual data resulting from the two surveys, while of great value, could not be used as a reliable basis of accrediting without a thorough supplementary visitation program to include those intangible factors that could not be ascertained by correspondence.<sup>64</sup> The Association has at no time possessed the funds with which to undertake this complete accrediting procedure, nor could it provide the requisite authority to insure effective action in accordance with its findings.

<sup>63</sup>"Report of the Executive Committee to the Joint Conference," *Report of the Proceedings of the Nineteenth Annual Meeting of the Association of Collegiate Schools of Architecture*, Washington, D.C., April 25, 26, 1932, p. 24.

<sup>64</sup>*Report of the Proceedings of the Twenty-sixth Annual Meeting of the Association of Collegiate Schools of Architecture*, Washington, D.C., September 29, 30, 1939, p. 8.



Also, most educators in the field of architecture have come to believe that this important link in the nation-wide system should be the responsibility of the profession as a whole. Therefore, in 1938, the Executive Committee of the Association instructed its officers to confer with representatives of the American Institute of Architects and the National Council of Architectural Registration Boards regarding collaboration in setting up an adequate program of evaluation and accrediting of the schools of architecture. The Advisory Committee on Preparation for the Practice of Architecture, referred to above, also passed a resolution to that effect. This resulted in the appointment, in 1939, of the joint Accrediting Board composed of six members, two from each of the national organizations. Edwin Bergstrom, President of the Institute, was elected first president of the Accrediting Board.

The joint agreement specified that the major elements in the process of accrediting under the direction of the Board are to be as follows: first, the gathering of factual data; second, thorough personal visitation of the schools; third, analysis and correlation of all results of the survey; and fourth, publication of an official accrediting list.<sup>65</sup> The Board has no authority beyond this point, either to impose restrictions on any individual school or to create or recognize conditions which tend toward standardization. In line with present-day thought in architectural education, the intention is to encourage freedom of action and those practices which seem to each school to be best suited to its special needs.

*The office-experience period and the mentorship plan.* The problem of introducing some supervision of the post-college period was also considered in connection with the unification movement. While this study has been limited to the development of formal architectural education within the schools, the mentorship movement should receive mention for it arose from a serious deficiency in the complete program of preparation for professional practice. The profession has recognized both the necessity of and its responsibility for providing the graduates of the schools with the required supplementary experience in the offices of practicing architects. The situation, however, has not been adequately controlled. Because of the involved commercial character of professional practice, no agency has been established corresponding in objectives to the internship of the medical profession. As noted previously, some of the schools have required a beginning in office experience during summer vacations, and most of them have assisted the graduates as far as possible in obtaining positions in the offices of recognized practitioners. A few offices have regularly placed graduates on their staffs and have provided them with well-balanced backgrounds of experience. For the most part, however, the beginning architects have been compelled to shift largely for themselves. If they were fortunate enough to enter good offices, they were

<sup>65</sup>*Minutes* of the Eighteenth Annual Convention of the National Council of Architectural Registration Boards, Washington, D.C., September 30, 1939, p. 16.



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usually retained in some one department because, due to growing experience or some special ability, they were more valuable there. During the economic depression graduates were ignored and often exploited. The period following the idealism of the school has too often been one of cruel disillusionment and discouragement.

With the establishment during recent years of comprehensive state registration board examinations for the state license to practice architecture and the National Council examinations, this weakness in the general program of preparation for practice has become increasingly apparent. The first step toward a solution of the problem was undertaken at the joint conference in 1932, at which time Charles Butler, then chairman of the Committee on Education, said:

We have got to establish cooperation between the schools and the registration boards; and so far none has existed. I am speaking as a member of the Examining Board, and as Mr. Hall (representing the N.C.A.R.B.) said, "The ignorance of the boys who come to us for examination supposedly after three years of experience out of college is shocking"—I think that most of them know less than when they graduated from your schools.<sup>66</sup>

The matter was referred to the newly organized Joint Committee on Preparation for the Practice of Architecture. (See page 201.) Since there was no meeting of the Association in 1933, the committee did not submit its plan until 1934, when it was embodied in the published report of the Committee on Education of the American Institute of Architects and was called the Mentorship Plan. It was approved in principle in 1934 by the Association, the National Council of Architectural Registration Boards, and the American Institute of Architects.<sup>67</sup> At the following annual meeting in 1935 it was reported that ten graduates had enrolled in the plan.

The Mentorship Plan may be outlined as follows: It is essentially a joint program of the school and the profession. Upon recommendation of the school to the National Council of Architectural Registration Boards, the graduate submits his application for enrollment with the body anticipating a minimum period of three years of office experience. If the application is approved the graduate, with the advice of the school and the Education Committee of the local chapter of the American Institute of Architects, selects as a mentor a practicing architect of recognized standing in the profession. The mentor upon the final approval of the National Council becomes the graduate's guide throughout the office-practice period. The mentor receives an outline of his duties which are to make certain that the graduate obtains in his own office or in those of his colleagues sufficient experience in each of the diversified branches of practice to guarantee an adequate technical command of his profession, and to advise him in making those broader social

<sup>66</sup>*Minutes of the Nineteenth Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D.C., April 25, 26, 1932, p. 28.*

<sup>67</sup>*Minutes of the Thirteenth Annual Convention of the National Council of Architectural Registration Boards, Washington, D. C., May 15, 1934, p. 31.*



and professional contacts which are so important to the architect. After the close of the three-year period, or at such later time as the mentor is satisfied that this experience has been obtained, he recommends the young architect as a qualified candidate for the National Board Examinations for professional practice, and submits the record of achievement for the final approval of the National Council. The responsibility for the supervision of the practice period is placed upon the active profession where it has always rested, the only difference being that here, by means of an organized plan and the prestige of a national controlling body, much more positive results should be obtained.

The mentorship plan was admittedly only an experiment. It has not received the final endorsement of the state and local professional agencies; and it has been purely a voluntary program on the part of the graduate. There are two weaknesses now evident in the plan which would seem to seriously endanger its success. First, because of the trying conditions of contemporary practice, few offices can afford to make the necessary contribution in time and money to provide this broad experience to beginners; and second, many of the graduates after completing a long and expensive period of school training are more tempted by the promise of immediate remuneration than by that of a broader preparation for future practice. The importance of the mentorship movement lies in the establishment of the fact that the profession has come to recognize the need for an organized program to guarantee to the college graduate the diversified experience within its offices that it demands of him. The weaknesses of the plan notwithstanding, it doubtless points the way toward the ultimate solution of this difficult educational problem.

The University of Cincinnati cooperative plan, without doubt, represents one solution of the office-experience problem, for it makes possible an effective coordination between the theory and practice branches of student experience. It has been proved repeatedly in individual cases that a period of practical work interspersed within the school curriculum insures not only better qualifications for the later technical courses, but greater appreciation of the meaning and value of the entire school program. The University of Cincinnati, however, is the only school which has attempted such a plan, for three serious difficulties are involved. First, to be successful the school must be situated in a center of architectural activity, a condition which is true of but half of the schools. Second, there is required an elaborate organization with many contacts with the professional world such as has taken several years of effort to establish at the University of Cincinnati. Third, the rigid academic organization in most universities would make a radical departure such as the Cincinnati Cooperative System almost impossible.

*Relation of the Registration Board examination to the work of the schools.* As an element in the relationship of the three national organizations concerned with education, it is recognized in architecture as in



other fields that it is the function of the profession to determine its standards for admission to practice. The formal means of expressing the standards are the Registration Board examinations. These examinations, which are required of all candidates for the license to practice, necessarily influence the present trends in architectural education. Especially is this true in the fields of construction and those subjects which have to do with the technical responsibilities of the practitioner.

Notwithstanding the fact that there exist two distinct steps in the training of an architect, namely, school theory and office experience, the profession offers but a single written examination covering both steps and normally taken at the close of the office-experience period. The origin of the single comprehensive examination in architecture lies in the fact that a large proportion of the candidates have in the past been, in part or wholly, office-trained; and most of the states still admit non-graduates to the examination.

The first years of diversified office experience demand all of the graduate's efforts, making it difficult for him either to retain or review theoretical details already covered by school examinations. Most educators believe that a purely professional examination should follow, embracing the results of the office-experience period together with only those broad concepts in theory which are the surest test of a sound and complete professional training.

Many schools would welcome more control by the profession through the medium of a comprehensive examination in theoretical subjects at the close of the school period. Non-school candidates might also be accommodated at such times. So far, however, the tendency toward any correction of this condition has fallen along the line of a possible elimination of some of the more rudimentary details from the single, State Board examination.<sup>68</sup> These are important problems to be solved through the coordinated efforts of the schools and the profession now begun in the unification movement.

#### READJUSTMENTS IN THE CURRICULUM AS A WHOLE

Several elements in the contemporary movement may be noted as relating to the entire architecture curriculum.

*The five-year curriculum.* The move toward lengthening the four-year curriculum to five years was an issue which claimed the attention of the Association of Collegiate Schools of Architecture for many years. The principal objectives in lengthening the curriculum were to relieve the heavy requirements of the four-year program and to make possible

<sup>68</sup>Statement by Emory Stanford Hall, Secretary-Treasurer, National Council of Architectural Registration Boards, *Minutes of the Thirteenth Annual Convention of the National Council of Architectural Registration Boards*, Washington, D. C., May 15, 1934, p. 21.



more emphasis upon the cultural and, to a lesser extent, upon the applied construction content. Most of the schools were agreed that the plan was desirable, but some of them questioned the advisability of attempting to make such a drastic change in the conventional university program because of the administrative complications involved.

In the Association convention of 1920, the five-year curriculum was approved as the consensus of the meeting, and in 1921 two resolutions were passed to this effect. Cornell University had maintained an optional five-year course since 1911, and it was the first of the member schools to discontinue its four-year course beginning with the year 1922-23. By 1926 ten schools had adopted the five-year course, five having discontinued the four-year courses. After 1924 the Association repeatedly considered the adoption of a ruling that no school could hold its membership which had not established a course normally to be finished in five years.

In 1931, at the time of the Association Survey, there were twenty-one schools maintaining a normal five-year curriculum.<sup>69</sup> Five of these then offered an alternative four-year program. By 1935, twenty-four of the forty-five schools in the United States were organized on the five-year basis (Table V). This does not include the three schools with normal six-year programs and Harvard University as primarily a graduate school.

*The orientation course and its relation to the curriculum.* The freshman introductory course, when it is given by a member of the architecture staff, represents a positive move toward the objective of greater educational efficiency. Eight of the forty-five schools in 1935 offered special orientation courses.<sup>70</sup> There is usually presented to the beginner helpful suggestions on the psychology of learning. Many of his naive and mistaken concepts of the meanings of architectural practices may be corrected. He is apprised, as far as his level of comprehension will allow, of the vastness, the complexity, the discouragements as well as the challenge of the modern profession of architecture. Certain basic principles may be discussed which will guide him in his thinking and around which he will build his constantly emerging concepts throughout his course. Finally, some reasons may be presented for requiring the specific subjects that make up the curriculum, especially the earlier portion of it.

*Greater unity in the curriculum.* There is a tendency in most of the schools to fuse the traditional scattered fragments that made up the early architecture course. The barriers of subject matter compartments are gradually being broken down and there is increasingly better coordination between all divisions of the curriculum and the major subject of

<sup>69</sup>Bosworth and Jones, *op. cit.*, pp. 190-193.

<sup>70</sup>*Bulletins* of the respective schools, 1935-36. Also direct correspondence with the schools.



design. Some of the schools, with this end in view, bring together the entire faculty upon the design juries so that the projects are criticized from the viewpoints of each division.<sup>71</sup>

*Less emphasis upon the fixed curriculum.* In accordance with the increasing tendency during the Modern Period to discount quantitative measures, less emphasis has come to be placed upon the time element of the specified curriculum. All except three of the forty-five American schools in 1935 published a normal program of studies for the purpose of efficiency of general organization and clarity of requirements for the students. It is with the needs and aptitudes of the individual students, however, that educators are becoming more concerned, regardless of bulletin subject requirements, groupings and sequences, or the length of curricula.

*Broadening the professional curriculum to include some of the allied arts.* In line with the modern tendency the principal theme of the 1927 convention of the American Institute of Architects was the need for more collaboration between architecture and the allied arts of painting, sculpture and the general field of design. Endorsing this principle, the Association meeting of that year was devoted to a discussion of the possibilities of closely related courses in the allied arts in connection with schools of architecture.

J. Monroe Hewlett said in an address to the Association meeting:

The responsibility of bringing back into the service of architecture all those arts which in the past were bone of her bone and flesh of her flesh is ours alone and cannot be shifted to any other shoulders. Education in the arts requisite to architecture should be carried on under architectural auspices and inspired by knowledge of architectural requirements.<sup>72</sup>

In the following year, 1928, the discussions were continued in both the American Institute of Architects and the Association conventions. Dean Meeks of Yale University and Dean Lawrence of the University of Oregon described the early collaborative movements in their respective institutions, which were noted above. Cornell University reported some experiments in this field; while the Carnegie Institute of Technology College of Fine Arts stated that they possessed all of the facilities but that little actual collaboration had as yet been attempted.<sup>73</sup> With the exception of the University of Cincinnati, no others had at that time developed any means of collaboration among the allied departments.

This was in no sense a condition of which either the profession or the schools had been unaware. As noted in Chapters II and III, the lack

<sup>71</sup>Bosworth and Jones, *op. cit.*, p. 51.

<sup>72</sup>J. Monroe Hewlett, "Collaboration and Education," *Minutes of the Fourteenth Annual Meeting of the Association of Collegiate Schools of Architecture*, Washington, D.C., May 9, 10, 1927, Appendix D.

<sup>73</sup>Discussion; *Minutes of the Fifteenth Annual Meeting of the Association of Collegiate Schools of Architecture*, *op. cit.*, p. 21.



of collaboration with the allied arts had been one of the important characteristics of American architecture, and one of the factors in the movement which had culminated in the founding of the American Academy in Rome. The individualistic tendencies of most university fine arts departments, however, and their lack of comprehension of the architecture of Eclecticism, long continued to render active collaboration with such departments almost impossible. During the latter half of the Modern Period, the greatest actual progress toward the goal of the movement took place along the following two lines:

1. Where spaces in the architecture curriculum and available facilities permitted, more short general courses, in the closely allied fields have been created. The objective was to acquaint the architecture student sufficiently with the principles of the allied arts and their logical relation to architecture to enable him to utilize them effectively in the unified ensemble of his projects, and to prepare him for better-coordinated efforts, in later practice, with the members of these allied professions. Also the actual contact with materials and processes in one of the more plastic and personal arts enriched the experience of the able student and encouraged his unfolding powers of creative design. Eighteen of the forty-five schools, in 1935, offered regular courses for architects in the important allied fields.<sup>74</sup> It must be understood that the number of formal courses offered does not represent all that was being accomplished. Many of the remaining schools included definite references to the allied subjects as a part of other regular courses.

2. In connection with, or at least in close proximity to, an increasing number of schools of architecture there were established professional curricula in one or more of the allied fields. Twenty-two of the forty-five schools were so associated in 1935.<sup>75</sup> Here through the informal contacts with both instructors and students in the art departments, the architecture students gained a sympathetic understanding and appreciation of the arts. The intangible values arising from this natural intermingling within the schools are powerful educational factors in training for effective collaboration in later practice.

*The increasing importance of industrial design.* During recent years there has been a growing need for instruction in the design of contemporary industrial products. Such courses are of necessity closely related to architecture. Some of the schools, as for instance, Columbia University and University of Michigan are developing strong allied departments in these subjects. Progressive educators today believe that, in many of its aspects, the basic concepts in industrial design are identical to those in architectural design, and that any great difference in the educational objectives of these arts cannot be distinguished.

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<sup>74</sup>Bulletins of the respective schools, 1935-1936.

<sup>75</sup>*Loc. cit.*



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*Closer relationship with landscape architecture and city planning.* In response to changing requirements in the practice of architecture there is a tendency, in an increasing number of schools, toward collaboration with the professional courses in landscape architecture and city and regional planning.

The profession of city and regional planning is a relatively new one, and complete curricula in the subject are entirely a product of the Modern Period and contemporary social needs.<sup>76</sup> It is directly concerned with architecture, the fine arts, engineering, economics, law and government, combining certain aspects of the function of each and developing a special technique in their comprehensive treatment.<sup>77</sup> The close relationship with architecture is now increasingly stressed by the architectural schools in providing the background of community interests that is vital in the modern design project. Due to the scope of the subject matter content, the study of city planning is in some institutions placed upon a graduate level, the most logical entrance prerequisite for which is graduation from a professional course in architecture. The new postgraduate programs in city planning at Harvard University, the Massachusetts Institute of Technology and Columbia University are illustrations.

Effective collaboration between departments of architecture and those of landscape architecture and city planning is being accomplished, as in the case of the other allied arts, in two ways. The first is by introducing these subjects in the regular architecture curriculum, either as special topics in the advanced professional courses or as separate electives. Most of the schools now include such references to both landscape architecture and city planning. The other method, which is available in those schools that are situated in close connection with professional divisions of these subjects, depends upon the informal interdepartmental contacts of faculty members and students. In 1935, professional departments of landscape architecture were maintained in connection with twelve of the schools of architecture in the United States and departments of city or regional planning with six of the schools.<sup>78</sup>

*The need for thoroughly professional postgraduate courses.* The young graduate architect is necessarily concerned with all current developments in both the scientific and economic phases of building. If he is to attain and continue to maintain his position as interpreter of the modern client's needs and as leader in and coordinator of the efforts of many highly specialized agencies in the realization of these wants, he must keep abreast of the industry. Unfortunately, means have been in-

<sup>76</sup>Rexford Newcomb, "The University and Social Planning," Reprint from *Social Forces*, 15:34, October, 1936.

<sup>77</sup>"The Graduate School of Design," *Official Register of Harvard University* (Cambridge, Massachusetts: Harvard University Press, June 27, 1936), p. 32.

<sup>78</sup>*Bulletins* of the respective schools, 1935-36.



adequate for such effective interchange of experience in architecture as exists, for example, in the medical profession; and there have been no postgraduate courses in the United States arranged to meet the demands of this situation.<sup>79</sup>

As was noted previously, the postgraduate year in this country has been largely a continuation of the undergraduate work. Its courses have seldom been of the specialized professional character that would attract either graduates or practicing architects. In a canvass of 424 graduates from eight schools during the previous fifteen years, Lawrence Kocher stated in 1930 that less than 4 per cent had returned for any graduate study.<sup>80</sup> Many educators believe that there should be established a few well-located postgraduate departments in which research in the latest developments in science as applied to construction, materials, equipment, etc., might be conducted, economics and design might be studied, current problems in sociology and community planning might be discussed, and modern trends in architecture might be evaluated. It is obvious that such an institution should be situated in the heart of a great metropolitan and industrial district where facilities for direct contact with research fields are available. The recently organized courses for graduates in architecture at Columbia University and at Harvard University are excellent examples.

#### READJUSTMENT RELATING PRIMARILY TO SUBJECT MATTER GROUPS

Significant elements in the current movement which are more specifically related to the subject matter groups are considered in this chapter section.

##### A. Design

Since design is the major professional subject throughout the curriculum, it was in this division that the precepts of Eclecticism and the methods of the Beaux-Arts Institute of Design had been most evident. Likewise, it is in design that most of the significant phases of the contemporary trends in architecture are centered.

There is a strong consciousness of the modern movement in design among students throughout the schools. As Dwight James Baum has said, this consciousness of modernity is significant, for it is a feature characteristic of all great periods of national artistic achievement.<sup>81</sup> It has become a deeper experience than a mere interest in the formulas of so-called Modern which swept through the country after 1925. The successful architect is always strongly aware of the culture of his time,

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<sup>79</sup>Lawrence Kocher, "Keeping the Architect Educated," *Architectural Record*, 67:45, January, 1930.

<sup>80</sup>*Loc. cit.*

<sup>81</sup>Dwight James Baum, "Modern Traditionalism," *The T-Square Club Journal of Philadelphia*, 1:14, April, 1931.



working within the limits of its best expression, and it is in such contemporary sources that the present student naturally finds his chief source of inspiration in the study of design.

*Realism in the design program.* As a basic feature of the contemporary movement the design project has become much more realistic. John Harbeson has said that this tendency toward realism is the most striking change in recent student work.<sup>82</sup>

Two closely related phases in this trend may be noted. One is represented by the tendency to extend the design programs to include a study of the practical building details as in actual office practice. The Canadian schools with their direct English connection have always emphasized this feature to a greater extent than have the École-inspired institutions of this country and their successful results prove that the movement is a sound one.<sup>83</sup> There were only seven American schools by 1935 which omitted all regular study of working drawings; and, whether this subject matter was given in connection with construction, drawing, design, or as separate courses, there was an increasing tendency to relate it to the design projects.<sup>84</sup>

The other phase has to do with the shift from the idealistic programs of the Eclectic Period to those evolved from the realistic conditions of today, embodying a study of the complex necessities of contemporary life in all of its practical branches as the modern architect must deal with them. In the more progressive schools, most of these projects are organized around existing local sites with an existing set of requirements. Such programs make it possible for the student to check his efforts against the realities of the world about him. An increasing number of the schools now write their own programs and these tend to reflect the actual problems of the particular community in which they are located. The realistic projects of today are also longer and more comprehensive, logically including, in addition to considerations of materials and construction, a study of the economic, social, and cultural environment. Ellis F. Lawrence has said:

We can make a program for a design project the vehicle for teaching sociology, politics, education, economics, and ethics, as well as the structure, hydraulics, illumination, and the laws of design. . . . Architecture is a projection of the society it serves. To teach it well it cannot be separated from the ideals and standards of society.<sup>85</sup>

Some conservative educators have warned that the schools should not overemphasize practical details. They continue to believe that such

<sup>82</sup>John F. Harbeson, "Design in Modern Architecture," *Pencil Points*, 11:639, August, 1930.

<sup>83</sup>Bosworth and Jones, *op. cit.*, p. 39.

<sup>84</sup>*Bulletins* of the respective schools, 1935-1936.

<sup>85</sup>Ellis F. Lawrence, "President's Address," Twenty-first Annual Meeting of the Association of Collegiate Schools of Architecture, Washington, D.C., May 14, 15, 1934.



learnings logically belong to the field of later office practice and that the schools may jeopardize their progress toward the important goal of training in aesthetic ideals and scholarship.<sup>86</sup> It has, however, been the universal experience at the institutions which have attempted this emphasis that a broad foundation in reality interfered with neither freedom nor imagination. It tended to direct the student during his successive projects to a consistent idealism and a vital scholarship in design. As was noted previously, in connection with the requirements of modern practice, there are certain basic and distinctive fundamentals of the creative art of architecture that cannot be ignored. Carefully studied, functional adjustments to meet contemporary requirements, first-hand contacts with the characteristic products of the machine, consideration of the logical results of the industrial and mass-production processes, and that clarity of thought demanded by exact structural calculations are the intellectual elements which qualify the mind of the developing student and lead directly to a true concept of modern design. Without normal and sustained experience in these factors throughout the curriculum, there can be no effective contemporary education in architecture.

The success of a design program in this regard depends materially, of course, upon the background of the instructor and his ability to present the essentials of life and its conditions today in a manner that will inspire the students. Such ability has become one of the requirements of a good design teacher. Louis Sullivan admonished his imaginary student of architecture to draw near to all things however humble and make them a part of himself, for the most profound philosophy deals with the things nearest us.<sup>87</sup>

As a corollary of this movement, there has come to be more emphasis placed upon common types of domestic architecture in design. This field did not lend itself well to monumental Beaux-Arts projects. In an architecture which finds its sources in the conditions of life, however, the dwelling holds a much more important place.

*New emphasis in design upon housing and community planning.* One of the most important characteristics of design courses today is the continual reference to the relation of architecture to the larger community problems, whether or not the school provides separate courses in city or regional planning. From time to time throughout the curriculum, projects are introduced in actual city and regional planning where, of course, those elements primarily of interest to the architect are stressed. The design student is now discovering vital interests for the architect in those problems of land-use planning which are becoming more and more essential to present-day civilization.

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<sup>86</sup> *Loc. cit.*

<sup>87</sup> Louis H. Sullivan, *Kindergarten Chats* (Lawrence, Kansas: Scarab Fraternity Press 1934), p. 225.



*Encouragement of creative effort.* The return to realism as against the more artificial idealism of the eclectic program involves the question of creative design. Speaking of the design processes of Neo-Classicism, Louis Sullivan said, when bookish scholarship becomes a fixed habit of mind, that habit unquestionably enfeebles creative powers. Progressive educators are now discovering that it is through a direct and constant search for original aesthetic form that this ability is most effectively developed.

Although the power to create is partially innate, it is well understood that it can be cultivated through stimulation from without.<sup>88</sup> In order to create, the student must have ideas with which to form his new concepts. These ideas the educator of Eclecticism termed architectural vocabulary, which were for the most part historic forms and Beaux-Arts motives and techniques. In the present movement the educator leads the student to the requirements of present-day life and its environment. These ideas are strengthened and vitalized by a growing background of awareness of the meaning of contemporary culture and its characteristic aesthetic expressions.

As Hudnut has said, imitation is a natural and useful process if it is prompted by discovery and emulation. The student turns, of course, to the popular solutions and motives which go to make up the current trend in style. No architect ever worked alone in his creations, much less can a student. There is, however, a tendency to discourage anything more than normal and healthy imitation. It is by means of such ideas as the realistic needs and desires of an assumed client that can be understood and interpreted, the facts of construction that may be emphasized, concealed or even discarded, the choice of materials and their natural characteristics, coupled with the suggestions and inspiration of the instructor, that the student creates his conceptions in the new architecture. The formation of such sound habits of creative approach to architecture early in the curriculum is the only means by which the schools can become more effective in preparing architects to grapple with the aesthetic problems of modern practice. As mentioned previously, a new brilliance in design was to be noticed in the early years of the Modern Period when the students first began to feel the release from the chains of the classic orders; and with the more sound approach to the modern ideal, it has increased.<sup>89</sup> The schools have succeeded in a measure, to use the words of Lawrence, in opening the floodgates of self-expression to make possible the beauty that is art.

*Use of models and perspectives.* In some of the early experiments previously noted, models were used in major design projects. The University of Michigan began an extensive experiment in this medium as

<sup>88</sup>William H. Kilpatric, "Some Basic Considerations Affecting Success in Teaching Art," *Teachers College Record*, 32:348, January, 1931.

<sup>89</sup>Kahn, *op. cit.*, p. 33.



early as 1925. Preliminary studies in a plastic material on a small scale were made in all problems. These were limited largely to studies of general architectural composition. At the Massachusetts Institute of Technology modeling studies in various elements of composition have been given for many years in connection with design and judged just as design projects. In the case of all of the schools that have recently taken the more extreme position in the contemporary movement in design, the use of models, as an important part of both study and presentation in major projects, has become universal.

The chief objective in the use of models is to assist the student to visualize the three-dimensional reality of the object he is designing and also the manner in which the various elements of the structure must fit together and "build" as in the actual construction. Models may readily be studied from all possible angles and the plastic material used in preliminary studies is nearly as flexible as a medium as the traditional pencil sketch. The continued errors in the coordination of plan, elevation and section in the work of most students prove the need for at least occasional diversion from two-dimensional paper studies, with the accompanying "tricky" techniques, to a medium in which the true image as a whole must be visualized. Particularly is this direct three-dimensional study of value to the beginning student for it establishes sound habits of thought in creative design.

As a feature with the same general objective, there has been a definite tendency to make wider use of perspectives in all design projects. Throughout recent years the Beaux-Arts Institute of Design has required a general perspective in all of its major projects. Since the design problems were sent from the local schools to New York City for judgment, any direct use of models was obviously prohibited.

In addition to the fact that the increased use of models is a logical phase of the contemporary movement in architectural education, the character of modern architectural forms is more adequately expressed by such a medium than by rendered elevations. The architecture of simple volumes and planes does not lend itself to the paper techniques traditional of the École des Beaux-Arts.<sup>90</sup>

*The element of draftsmanship.* The simplified forms of modern architecture and the new stress upon direct creative expression as well as the practice of submitting most of the problems in the form of unrendered line drawings and models have tended to weaken draftsmanship in the sense of the traditional Beaux-Arts ideal of skill in carefully detailed architectural presentation. A comparison of current exhibitions of the work of the schools sponsored by the Association of Collegiate Schools of Architecture with that of any similar exhibitions of ten or more years ago well establishes this fact. The shift away from the overemphasis

<sup>90</sup>George Nelson, "Architects of Today, No. 3, Gib. Luckhardt, Germany," *Pencil Points*, 16:133, March, 1935.



upon elaborate techniques of paper expression so typical of the Eclectic Period is a healthy movement, especially in the early formative years of the curriculum. Many educators now caution, however, that it should not be carried too far. The practical work of an architect's office must always demand of the graduate a foundation in the skill of making clear, accurate and presentable drawings of architectural forms and details.

*The question of competition.* As noted earlier in this chapter, the Beaux-Arts atelier concept of a group of students, each working at his own problem under the periodic, individual criticism and inspiration of the instructor is basic to architectural education in this country. Some of the important features of the atelier system are, however, now rapidly changing. Particularly is this true in regard to the element of competition.

The elimination of competition was a radical departure and, as late as 1931, Bosworth and Jones found the University of Oregon to be the only school to have accomplished it. They also noted that the "football practices and attitudes" of the post-war period were then flourishing at their height.<sup>91</sup> It was the weaknesses of this highly competitive system with its ultimate emphasis upon paper techniques and faculty domination of student ideas, as well as the growing conviction that a new architecture demanded a revision in pedagogical methods, that finally brought many other schools to veer away from this traditional feature of American architectural education. In 1934, as noted previously, all competition was eliminated at Columbia University under the very shadow of the Beaux-Arts headquarters.

There are now to be observed three "camps" among educational leaders. First, there are those represented by the Oregon school who decry all competition as harmful. They believe that it is false motivation tending to obscure the important issues which should form the broad basis for the study of every project in contemporary architectural design. Second, there are those who remain firm in the conviction that the traditional Beaux-Arts competitive method may be honestly and rationally administered as has been the case in many schools, and that this healthy competition in design among students both within the atelier and among different ateliers and schools is advantageous. Third, there is a more numerous group who hold a position midway between the two extremes.

It has been demonstrated that without the element of competition, student interest in modern design does not diminish materially.<sup>92</sup> At least, there would seem to be no longer any justification in stimulating interest in design to the point where other subjects tend to be neglected. The majority of educators hold that competition, when it is carried to such an extreme as to make mention-getting *per se* a motivation, is bad

<sup>91</sup>Bosworth and Jones, *op. cit.*, p. 40.

<sup>92</sup>*Ibid.*, p. 38.



pedagogy. Nevertheless, they believe that there is great value in an atelier of students working upon the same problem, where different aspects are brought out in the several solutions, where these may be analyzed and compared in the judgment, and where outstanding students may, by their direct example, set a standard for the class. It is, however, maintained that such regular judgments should be limited to the single atelier or class so that the ridiculous situation of a competition among different teachers and different educational institutions may not result. Also, less stress may be placed upon the artificial mention, leaving the judgment to constitute merely a normal review and comparative analysis of the project as the solutions hang side by side upon the exhibition room wall. The results, of course, should be discussed with the students at a regular class period or there ceases to be much reason for a judgment.

The possibility of overemphasis upon competition as fostered by the school mention is avoided in some institutions by not basing promotion upon the results of judgments, but upon the student's daily achievement and progress as estimated by the only one who can know anything about it—his instructor. Direct competition exists in the architectural profession and there would seem to be no reason for eliminating it in the school, except when it tends to become an end in itself.

*The individual student-developed program.* The student-developed program should be given special comment although it involves both the question of realism in programs and competition. It is felt by an increasingly large number of prominent educators that the faculty-written program is too artificial as a pedagogical instrument. These educators maintain that, since the more successful practitioner of today considers and advises with his clients from the first regarding those basic matters which are ordinarily stated as requirements in the program, the student should also be given this responsibility. They hold it to be a necessary part of his training and conducive to the right habit of approach to modern design.

The difficulty in this plan lies in the great amount of attention required by each individual student and the spread of daily preparation and interest required of the instructor. As Ellis F. Lawrence, the pioneer in the experiment, says, the system can only be successful where each instructor is responsible for only a small group of students. The difficulty is partially overcome at the University of Oregon by a more or less fixed series of subjects which each student follows. Most of the schools are tending to compromise on this matter, introducing the student-developed program at certain levels in the curriculum and especially in the final design thesis.

*The decline of the Beaux-Arts Institute of Design.* All the recent changes have tended to weaken the position of the Beaux-Arts Institute of Design in collegiate education. As early as 1928 many of the schools



questioned its value and criticised it from the standpoint of exotic programs, geographical difficulties and its traditional machinery and methods.<sup>93</sup> Relationships with the Beaux-Arts were repeatedly brought to the floor of the Association convention. In 1931 a permanent committee on "Relations with the Beaux-Arts Institute of Design" was appointed in an attempt to readjust the work of the Institute to the needs of the schools. Bosworth and Jones pointed out that the situation could not be attributed to the Beaux-Arts Institute of Design, but rather to its abuses.<sup>94</sup> Every feasible attempt was made by the leaders of the organization to bring the work of the students enrolled in its programs in line with changing educational standards. Nevertheless, the very nature of its general procedure invited abuse; in fact, made it inevitable. Due, also, to the economic conditions during the depression and the cost of the Beaux-Arts Institute of Design membership, enrollments rapidly decreased. At the Association meeting of 1935 a recommendation was submitted by the Executive Committee suggesting the discontinuance of the Institute as an undergraduate educational agency. After a spirited discussion the resolution was defeated but it clearly indicated the reduced status of the organization which had been synonymous in this country with Eclecticism.<sup>95</sup>

*The separate course in theory of design.* Twenty-two schools maintained separate courses in theory of design in 1935. As Bosworth and Jones pointed out, the value of such a course varies greatly with the qualifications of the instructor. The present tendency is to include, at least for the most part, the study of these principles as an integral component of the regular design courses.<sup>96</sup> It is held by modern educators that real progress is made only when the student attempts to create in terms of reality in so far as that may be given in the school. Paul Cret has always held that the schools should avoid the doctrinal tendency and that only by experiencing actual design is it possible to apprehend the fundamental theory of design.

In this connection several schools, of which the University of Cincinnati, the University of Florida, and the new Harvard University undergraduate program are examples, introduce some study of the theory of design in the freshman year. Here again, however, precepts and unrelated paper techniques are minimized. The study of abstract form, texture and color is made through creative experiments in actual modern materials. The effect of light as well as color upon these plastic forms is also made an important part of the course.

<sup>93</sup> *Minutes of the Fifteenth Annual Meeting of the Association of Collegiate Schools of Architecture*, St. Louis, Missouri, May 14, 15, 1928, p. 15.

<sup>94</sup> Bosworth and Jones, *op. cit.*, p. 43.

<sup>95</sup> *Minutes of the Twenty-second Annual Meeting of the Association of Collegiate Schools of Architecture*, Milwaukee, Wisconsin, May 26, 27, 1935, p. 5.

<sup>96</sup> Bosworth and Jones, *op. cit.*, p. 60.



A reference to form in nature is often included in contemporary theory of design and many drawing instructors also stress this in their classes. Nature forms have always inspired man and their analyses can be made to lead to basic abstract principles that will guide the student in creating a living architecture.

*The freshman year.* The advent of the so-called Modern in design initiated the steady decline of the order-analytique system. The Association Survey in 1931 reported that only from one-half to two-thirds of the schools still retained it, and as noted earlier in this chapter, the analytiques were no longer entirely classic.<sup>97</sup> In 1935 even the Beaux-Arts Institute of Design had dropped the analytiques.

A variety of experiments have been and are now being tried in an attempt to discover a better introduction to the study of design. Underlying them all are certain general convictions. One is that the beginning year in design is of far greater importance than it was held to be under the rule of Neo-Classic Eclecticism. Also that the teaching of the beginner, instead of being relegated to the most inexperienced members of the staff and even to student assistants, should be under the direction of the most able instructors in the school. There is a growing belief that the educational approach should no longer be made by way of a study of the perfection of past monuments, the meaning of which no freshman can understand, but by the creation of architectural solutions to the most simple situations in contemporary life. The freshman does not devote this important formative year to a study of artificially amputated portions of external decoration in order to acquire a so-called vocabulary. If progressive educators sense the need of some study of the refined and traditional orders of classic architecture, this material is allocated later in the curriculum where its meaning is better understood. Louis Sullivan foresaw this when he wrote in his characteristic manner:

To begin the serious study of architecture by a haphazard, tawdry examination and analysis of its finished forms or its decadent forms in certain periods of the past, or its elaborately illogical and artificial academic forms—the present day echoes thereof—is a process so insane that I leave it to the schools, their professors, and their joint folly.<sup>98</sup>

The new freshman project generally involves some small and relatively simple type of building, the function of which is known to the student. The major elements of the situation are analyzed in group discussions, including broad considerations of structure as well as other sources of inspiration, and from these the student evolves an architectural scheme. Any discussion of style, of course, is not included. The means of developing the project vary greatly. In some schools it is merely a typical small plan problem. In others, as at the University of

<sup>97</sup>*Ibid.*, p. 40.

<sup>98</sup>Sullivan, *op. cit.*, p. 161.



Kansas, the building is studied in mass only, details being added to the projects progressively in succeeding years.

As was explained above, there is a tendency toward the use of models as a medium of expression in the beginning plan projects. At the University of Southern California the freshman studies his project first in a small scale plastic model with walls and roofs of rolled-out plasticine enclosing the spaces required in his solution. Then he carries the problem to a final large scale model of cardboard, cellophane, etc., in which simple construction details and color are included. Lastly, plans, elevations and sections are made. These drawings are always intelligent and correct, but no emphasis is placed upon skill in drawing or rendering at the freshman level. It has been the experience of all of the instructors in this school that such skill in presentation is best acquired by means of the normal processes of practice throughout the five years. Gradually and naturally the beginner is led from the model study method to the more convenient medium of drawings.

*The intermediate years.* With the growing tendency to eliminate the sophomore analytiques, the intermediate practice period may now be considered as extending from the first to the final year of the curriculum. From the freshman design problems, as described above, there is a normal transition to the regular projects of the later years. The programs and the nature of these projects remain generally the same throughout except that progressively larger and more complex problems are introduced. Lengthening this intermediate period in the study of design permits the introduction of a wider range of subject matter, longer projects, and more thorough training in those fundamentals which are necessary for contemporary practice.

*Preliminary investigation in the design project.* The student begins the average new major project with a period of investigation in the requirements and conditions of the problem, much as this would be done in a good office. The period may last a week or even longer depending upon the type of problem. This research is carried on by the students under the direction of the instructor. All information available in the library is gathered, peculiarities of the site are studied, similar existing institutions are visited, and experts are consulted regarding functional necessities or data upon the special types of construction, materials and equipment that the class contemplates using. Many additional factors are included, when the occasion arises, within the planned sequence of problems, such as questions of financing, transportation, traffic conditions, or probable trends in community growth. The students may present the results of their preliminary investigation in the form of written reports that are available to the entire class.

*The new preliminary sketch or esquisse.* With the emphasis upon realism in the study of design, a revision in the objectives of the preliminary sketch has been necessary. Several schools were experimenting



with the esquisse as early as 1931.<sup>99</sup> Ten institutions had adopted the new form in 1935.<sup>100</sup> With less stress upon the results of the judgment, there is no longer the same temptation for a student to adopt a scheme other than one of his own inception. As the problems become more realistic there are sufficient restrictions with which he must cope without imposing artificial ones. Also the more complex modern conditions developed during the investigation period require more study and advice before commitment upon a definite scheme or *parti*. In the school of today there is not sufficient time to allow students continually to devote a large portion of the allotted project period to the tricks of overcoming a hastily chosen scheme.

The tendency, then, is to lengthen the time allotted to the preliminary sketch with both additional research and criticism so that it approaches the character of the corresponding stage in architectural practice. The preliminary sketch seems to continue to be a necessary factor in the design project even in the schools which minimize competition, for it brings to a definite close the exploratory period.

*The final study period and presentation.* During the final weeks of the project, the modern instructor emphasizes the perfecting of the functional processes. Some schools make careful diagrams of the normal "flow" of activity and material. The instructors in construction are available for advice upon structural and equipment questions. Samples of materials are studied for suitability, durability, color, and texture. The essentials are never ignored and the guiding principles of economy and human comfort are always stressed. As the study progresses, these carefully thought-out practical considerations are moulded in a natural manner into pleasing sequences of spaces, to be refined and accented, to the extent of which the student is capable, as his sense of contemporary design and of the underlying culture of his community unfolds. Finally the problem is submitted in honest and clearly presented line drawings and often models.

*The comprehensive thesis in design.* In 1935, the thesis was required by twenty-four of the forty-five schools as an instrument for the final integration of the various elements of the undergraduate curriculum with design and for a broader and more realistic conception of what generally constitutes the practice of architecture.<sup>101</sup> The thesis also provides an opportunity for additional study in certain fields of construction and equipment as well as finance which may be, of necessity, curtailed in the regular courses of instruction. An increasing number of schools allow the student to plan his own individual thesis program. After the program is established, the study includes library investigation, trips to similar types of existing buildings, analysis of the activities to be housed

<sup>99</sup>Bosworth and Jones, *op. cit.*, p. 50.

<sup>100</sup>*Bulletins* of the respective schools, 1935-1936.

<sup>101</sup>*Loc. cit.*



and the social and economic aspects included, the choice of an actual site with its limiting conditions, and some consideration of structure, materials, and equipment. It was discovered, however, in the Association Survey that much variation existed in the extent to which the thesis was carried into the study of structural and mechanical details.<sup>102</sup> The most important element of the architecture thesis is, of course, the feature of a definite culmination of the study in the design.

*The unified design curriculum and improvement in graded levels of programs.* The elimination of the order-analytique stage in most schools has made possible a new degree of unity in design from the beginning of the freshman year to graduation.<sup>103</sup> This general readjustment and the much lengthened period devoted to plan projects has necessitated more care in grading programs throughout the curriculum. The tendency for the schools to adopt locally written programs in which the matter of grading can be more easily controlled has been a factor in this movement.

The arrangement of design programs into a well-graded series not only by years but problem by problem is a difficult matter requiring close cooperation among members of the design staff. Especially is this true where an attempt is made to keep the projects based upon live situations at each level. Nevertheless, this improvement in the design curriculum is one of the important demands in present-day architectural education.

The emphasis upon more adequately graded projects throughout the curriculum renders the Beaux-Arts practice of flexible promotion by jury mentions a questionable one to many educators. If advancement is made by means of the successful completion of an intelligently organized series of projects and with the approval of the instructor as to the actual progress of the student as a designer, there is little reason for promotion other than by regular semesters or years. Certainly there need be no such artificial stimulus as inter-term promotion to engender student interest in present-day design.

*The importance of the traveling exhibitions of the Association.* Several exhibitions of the design work of different member schools have been held in connection with annual meetings of the Association of Collegiate Schools of Architecture. In recognition of the value of this comparison of student effort, the first traveling exhibit was organized in 1928.<sup>104</sup> Fourteen schools requested the exhibit, and the itinerary was arranged to include all of them. The experiment was repeated in 1929. In 1930 the number of schools placing requests was so large and the distance across the country so great that two simultaneous exhibitions

<sup>102</sup>Bosworth and Jones, *op. cit.*, p. 52.

<sup>103</sup>*Ibid.*, p. 51.

<sup>104</sup>*Minutes* of the Fifteenth Annual Meeting of the Association of Collegiate Schools of Architecture, St. Louis, Missouri, May 14, 15, 1928, p. 8.



were arranged, one following an eastern and the other a western itinerary. This arrangement has been maintained each succeeding year. In later years these annual exhibitions have been limited to those branches of the design curriculum which were of special interest at the time.

Many of the schools of architecture are situated far from similar institutions and the yearly traveling exhibition showing the comparative methods and achievements in the major divisions of the best schools of the country has been an inspiration for both faculties and student bodies. Especially has this been true in the weaker schools. To a partial degree, the exhibition has superseded the competitions of the Beaux-Arts Institute of Design as a yardstick for measuring the quality of achievement within each school. During these early years of a period of confusion and experimentation, the nation-wide comparison of student effort has had an important role in the development of modern American architectural design.

#### B. Science and Construction

Methods of teaching construction, as they have been inherited from the early affiliation with engineering, have not changed so much as those of other branches of the curriculum. Certain definite and important trends, however, may be noted.

*Development of a sense of structure in architecture as against mere knowledge of factual engineering details.* One of the chief impediments in the development of sound training in architectural construction has been the fact that many teachers, especially in the more theoretical branches of construction, are either specialists in pure science or engineers. Also, as noted in Chapter III, such subjects are often studied in classes with engineering students. It has been almost a universal experience that an engineering instructor is unable to teach either mathematics or the structural subjects in the manner in which an architect should learn them.<sup>105</sup>

In 1931 the Association Survey discovered that many able educators were aware of a need for the kind of instruction which leads to the forming of those broad concepts of structure with which the architect must now be concerned in his practice.<sup>106</sup> Such concepts cannot be developed, of course, without providing the student with a foundation of experience in detailed theory, but the subject matter may be chosen from the standpoint of the architectural objective, and much of this theory may be studied through empirical methods rather than through the highly mathematical methods of the scientist and the engineer.

The distinctly professional, architectural approach to the study of applied construction lies through the subject of design, and obviously a continuous integration of the student's structural experiences with those

<sup>105</sup>Bosworth and Jones, *op. cit.*, p. 32.

<sup>106</sup>John V. Van Pelt, "Architectural Training in America," *Architectural Record*, 63:448, May, 1928.



in creative design is the most effective method of developing a real sense of structure in architecture. In several schools, as for instance the Massachusetts Institute of Technology, Harvard University and Columbia University, the construction instructor accompanies the design critic from time to time through the design drafting room, conferring with the students regarding the structural aspects of their projects. Unfortunately, conditions within the staff organization of some schools make such collaboration almost impossible.

*Greater unity in the construction division.* In those schools which have led in the modern movement, there has been a tendency to unify the scattered and often unrelated construction subjects.<sup>107</sup> Eleven schools have now organized omnibus courses in mathematics in which the subject matter of practical interest to the student of architecture is selected from the several traditional groupings and organized to meet his needs. Also many of the schools omit the more advanced mathematics and they tend to depreciate the objective of so-called mental discipline which has long been involved.<sup>108</sup> Only eighteen of the forty-five schools in 1935 required calculus. In theoretical science, thirty institutions provided separate courses in physics, but only eight required chemistry.<sup>109</sup> In some of the recently developed programs a single course has been organized which embraces most of the branches of architectural construction and which employs the typical problem method.

*New emphasis upon the study of materials and scientific processes.* Most of the schools now provide some type of materials laboratory where examples may be filed for study purposes. A few also provide special shop facilities for experiments in the actual use of materials. Buildings under construction are often inspected and, in the case of the more favorably located schools, frequent inspection trips are made to the factories. In this manner the student is acquainted with the characteristic qualities of materials as they are used in modern architecture.

The study of architectural materials, at least in its less technical phases, is now being started earlier in the curriculum and it is more thorough so that the student learns how to use them logically and sensitively as he grows in his ability to design. The experiments in the subject of materials now being conducted in many schools are of greatest importance to the final realization of a truly modern expression in architecture in this country.

*Increasing importance of construction subjects in the architecture curriculum.* With the formulation of more clear-cut objectives in the division of construction, these subjects are being considered of greater relative importance in most schools. The increasingly heavy require-

<sup>107</sup>Bosworth and Jones, *op. cit.*, p. 29.

<sup>108</sup>*Ibid.*, p. 23.

<sup>109</sup>*Bulletins* of the respective schools, 1935-36.



ments of many state registration board examinations have been a factor in this regard. In the theory branches there is still much disagreement as to the amount of subject matter which should be required. Proficiency in the solution of the more simple problems and sufficient training to understand what is implied in the more complicated ones are usually the objectives.<sup>110</sup>

The subject of building equipment, as far as the principles of this extensive modern science can be included in the school curriculum, is also gradually receiving more emphasis. In the words of Bosworth and Jones, the idea is struggling for expression that the mechanical parts of a building must now be admitted to the architecture family by whole-hearted adoption instead of by sufferance.

Since the architect must supervise and include in his planning the vast number of scientific products and processes in both construction and equipment, he must continually refer to the advice of experts. Experience in this important procedure may well be begun by the student for it assists him not only in gathering immediate facts, but in forming right habits of approach in this essential feature of contemporary architecture.

In those schools which include the general thesis as a requirement for graduation, this project serves to provide additional training in construction as well as in summarizing and consolidating that which has been learned in the different preceding branches of the subject. Since the subject of construction is definitely coordinated with a comprehensive individual design program in the thesis, this is an admirable device for finally impressing upon the student the logical relation of construction to architecture.

### C. Architectural Economics

The increasing importance of economics in present-day industrial life, particularly as it is reflected in the contemporary practice of architecture, is beginning to affect the curricula of many schools of architecture. The subject can no longer be considered as merely a branch of construction or as a so-called cultural subject. In the opinion of many educators, it should be treated as one of the major divisions of the professional curriculum.

If the architect is to be equipped to work sympathetically within the spirit of his own time, he must be given a broad comprehension of the meaning of the present economic order as a basic element of modern civilization. Harold F. Clark has said:

In the light of recent economic changes there is no reason why America should not evolve the most beautiful civilization the world has ever known. Progressive schools, so-called, will not contribute to this process of evolution so long as their conception of art and culture and individual development is to have a child build models of Greek temples.<sup>111</sup>

<sup>110</sup>Bosworth and Jones, *op. cit.*, p. 25.

<sup>111</sup>Harold F. Clark, "The Influence of Economic Forces upon Education," *Teachers College Record*, 32:331, January, 1931.



There are certain basic economic principles which apply directly to the practice of architecture. They are as much an integral part of modern architecture, as a style, as are considerations of structure. The student should early begin to understand and consider them in order to form correct concepts in creative design.

As in the case of the subject of construction there are two distinct divisions of economics as applied to architecture; first, the theory course in general principles usually taught by the lecture method, and second, the applied subject matter which is regularly given in connection with design and as a factor in design.

*General theory of economics.* In 1935, twenty-seven of the schools included a lecture course in economics which was usually given in the economics department of the institution.<sup>112</sup> In a few cases, as at the University of Southern California, this is followed by a more specialized lecture course in the principles of real estate and construction finance.

*Applied architectural finance.* As in other divisions of the curriculum, the theoretical principles of architectural economics should be integrated with the major professional subject of design if instruction in this division is to be effective. Especially is this true of those principles which have direct application to general practice. It has been held in the past that such information could best be learned in later practice, a viewpoint which doubtless accounts for the frequently cited failures of many practitioners in the financial phases of architecture. Certain underlying principles and habits of approach undoubtedly can be taught in the school much more effectively than they can be acquired in conjunction with the hurried pressure of the modern office. Such topics as the following, if they have been adequately presented previously in a special theory course, may be directly applied in a design project: principles of real estate and business law, problems of labor and transportation, types of financial institutions, investments, appraising, insurance, maintenance and depreciation. At the University of Southern California at least one program for a major project in each of the last two years of undergraduate study is written to embody an application of as many as possible of these elements of modern architecture. Such projects are very realistic and usually based upon local conditions. Several other institutions are making similar experiments. In those schools in which a thesis is required there are also presented excellent opportunities for applying the principles of economics in a completely integrated experience for the student of architecture.

#### D. History of Architecture

The decline of Eclecticism has tended to produce radical changes in the objectives of the history of architecture division. Since the subject

<sup>112</sup> *Bulletins* of the respective schools, 1935-36.



matter may no longer be considered as primarily a storehouse of ready ideas for design, its former chief function has been eliminated. More than in any other division there exists an uncertainty and a general disagreement as to what either the objectives or the approaches to the subject should be.<sup>113</sup>

There is a general tendency for students to be less interested in the course. Many, in fact, have developed a distaste for the work of the past, a natural outcome of their emotional attitude toward popular trends in design. Students are interested in that which they believe they can use directly in their professional study and later practice.<sup>114</sup> It ought to be noted in this connection that this change in student attitude is not so pronounced in the case of the domestic phases of past periods, since American domestic architecture, with its strong tendency to retain traditional forms and character, still offers an opportunity for direct application of the historic styles. There also logically exists much interest in the history of the more modern periods of architecture.

*Present theories concerning desirable adaptations in content and methods.* The more commonly projected viewpoints held by prominent educators who are attempting to readjust the teaching of the history of architecture to changed conditions, may be listed as follows:

1. Most educators maintain that greater emphasis should be placed upon a presentation of the nature of and the conditions surrounding the successive civilizations, and the manner in which the resulting types of architecture have evolved. Their reason for this position is that students may thus be led to a fuller comprehension of the meaning of architecture and a better understanding of the modern movement and their own relation to it. Bosworth and Jones point out in this connection that it is very difficult to obtain teachers who are qualified to present the subject in this manner so that it will be convincing to the students. It is not easy to demonstrate that precedent in architecture is not only a matter of forms but reasons back of forms.<sup>115</sup> Also, the expression of one's civilization in design is a more subtle and unconscious process than can be brought out by a deliberate effort at comparison with past evolutions.

2. Many educators still hold the belief that an important feature of the history class is architectural criticism, both positive and negative. They maintain that historic examples, as discussed in the history class, present an excellent opportunity for setting up technical evaluations in design, often apart from any consideration of the conditions which produced these examples. Hudnut says that such criticism involves the

<sup>113</sup>Round Table Discussion led by Joseph Hudnut, *Minutes of the Seventeenth Annual Meeting of the Association of Collegiate Schools of Architecture*, Washington, D. C., May 19, 20, 1930, p. 30.

<sup>114</sup>Bosworth and Jones, *op. cit.*, p. 33.

<sup>115</sup>*Ibid.*, p. 34.



danger of forming the student's opinion for him; therefore, any such attitude on the part of the instructor ought to be limited as far as possible.<sup>116</sup>

3. There is a general agreement that to a certain extent historic precedents still hold value as inspiration for modern design. The distinction ought again to be made, however, between that vitalizing inspiration from the rich accumulation of past experience which is the heritage of true contemporary architecture, and the so-called modernization of copied historic forms, a weakness of the early Modern Period. As far as the approach to architecture is concerned, these two concepts are diametrically opposed.

4. The theory which holds most closely to the present philosophy of architectural education treats the history of architecture as merely the panorama of a continuous pageant of human effort. Hudnut says:

Architectural history can justify itself culturally on its own terms. All useful aspects defeat and obscure the real thing to be got out of it. Education is not instruction but experience. Let's not conceal revelation of architectural expression by notions of practical usefulness.<sup>117</sup>

Doubtless, in the end, this last method of approach will be found to embody in a normal way whatever values each of the previously mentioned theories has for the modern student.

*Placement in the curriculum.* Because of its changing character and objectives, there is a tendency to place the history of architecture course later in the curriculum. There is no longer a need for a so-called vocabulary of historical forms in the early years, and from every standpoint the student is better equipped to gain full value from this experience after he has begun to comprehend the meaning of architecture in his other courses. This is undoubtedly the answer to the problem of waning student interest. Any possible integration of the history of architecture with other subjects is also more effective in the later years of the curriculum.

*Integration with design.* There was almost no direct integration between the subjects of history of architecture and design during the Eclectic Period; yet there would seem to have been more opportunity for it than there is at the present time. In spite of this fact, however, some effort is now being made in connection with the general trend toward a more unified curriculum. The only direct medium devised for this purpose is a design project based upon and coordinating with the period under discussion in the history class. There are two types of design problems now being used which have a relation to the history of architecture:

<sup>116</sup>Round Table Discussion led by Joseph Hudnut, *loc. cit.*

<sup>117</sup>*Ibid.*, p. 29.



1. The Beaux-Arts archaeology *projet*. The Association Survey found that in 1931 most schools still used this ancient instrument of instruction to some extent.<sup>118</sup> When there was a tendency to hold the history of architecture as primarily a storehouse of design motifs, the archaeology *projet* was defensible. In the present movement, however, as Hudnut says: "They have no value from the point of view of historical study; they are fun for the students and have value there."<sup>119</sup>

2. The so-called original designs in connection with the history of architecture courses. These studies are usually in color and the details are often carried to a large or full-size scale. The design course in history of ornament at Ohio State University provides good examples. Here there is required some understanding of the essential character of the architecture of the period being studied, and the designs are not mere slavish copies. If the student is allowed a modern program for which to develop his historical design, these exercises revert to pure Eclecticism. It is a different matter, however, if the program consists entirely of attempting to recreate, as nearly as that can be approximated, a typical piece of architecture at a chosen period, to serve a typical set of needs and in the spirit of the materials, creative tools, and traditions of that time. In such a study the student discovers not only something of the real character of the architecture, but its broad relation to the civilization that produced it.

*The development of a sense of refinement.* Some of the most progressive educators of today believe that refinement of form in contemporary architecture can best be fostered by the right kind of study of the history of architecture. As in the case of all great periods in the past, the traditions which have been handed down and the lessons afforded by seasoned masterpieces provide the background and inspiration for the humanizing of our present machine-age forms.

*Historical research.* According to the Association Survey, there were then only five schools in which an approach to real research in architectural history was being conducted under the history of architecture staff.<sup>120</sup> Research was offered, of course, in other schools, but, due to the lack of library facilities and qualifications of the instructors, it had proved to be of little value.

Architectural education in this country, with its necessary emphasis upon creative aesthetic expression, elaborate techniques, and extensive rather than intensive learning, has always tended to be weak in the encouragement of academic scholarship. Doubtless the history research project and the historical design problem, especially when they are given as a coordinated effort, offer real possibilities for the development of genuine scholarship in architecture. As long as the historical phase

<sup>118</sup>Bosworth and Jones, *op. cit.*, p. 36.

<sup>119</sup>Round Table Discussion led by Joseph Hudnut, *op. cit.*, p. 30.

<sup>120</sup>Bosworth and Jones, *loc. cit.*



of this living art is not overemphasized and scholarship does not degenerate into a dry academic habit of approach in design, there can be no question of stifling creative powers. In fact, the fruits of such study should form the basis for sound judgment in the problems of modern creative design.

### E. Drawing

The courses in drawing, like many others in the architecture curriculum, are being reorganized in accordance with newly recognized needs of students. An attempt is being made to select content and methods in the light of their contribution to the architect's well-rounded development as a creative designer.

*Greater unity in the drawing division and increased integration with other divisions.* In accordance with the general trends in architectural education, there is a strong tendency toward breaking down the traditional compartments in the drawing division. Most of the schools now omit all detached courses in instrumental drawing, rendering, and lettering. It has been found that such techniques are more easily learned in connection with other drafting room subjects.<sup>121</sup> The graphics subjects are combined with design at Yale University, and at Princeton University a successful experiment has been tried combining graphics with freehand drawing, representation of form being studied from the scientific standpoint with instruments and from the aesthetic standpoint by freehand techniques. Freehand drawing, drawing from life, and water color are being successfully combined from the beginning at the University of Illinois. All courses in drawing and color are combined at the Massachusetts Institute of Technology; and this unified and well-graded training is spread throughout four years of the curriculum. A large portion of the drawing projects are definitely related to architectural design. Many other schools are affecting a closer integration between the drawing and modeling subjects and the other divisions of the curriculum, by means of a common emphasis upon creative effort.

*The creative method in freehand drawing.* Skill in realistic representation of architectural form and in the various techniques of expression involved is the basic objective in all freehand drawing courses which merit allocation under this division. In place, however, of the painstaking, uninteresting, detached exercises in copying plaster casts of the human figure, which have been the standard practice, an increasingly large number of schools now combine this training with exercises in creative composition. The program in drawing at twenty-two of the forty-five schools indicated progress toward this ideal in 1935.<sup>122</sup> The drawing courses at Massachusetts Institute of Technology, Carnegie

<sup>121</sup>*Ibid.*, p. 14.

<sup>122</sup>*Bulletins* of the respective schools, 1935-36.



Institute, and Armour Institute may be cited as examples. At Massachusetts Institute of Technology the greater portion of the work is creative in character. From the simple block forms of the first year to the advance life drawing and painting, the students first draw directly from the object and then attempt to arrange these forms into creative compositions with a definite architectural objective. In the senior year, painting and sculpture compositions are undertaken as actual elements of decorative architecture.

During the early years in most schools, continual reference is still made to the actual object represented. Instructors who use the new creative method maintain, however, that a far more thorough understanding of the essentials of drawing, both as to the representation of structure and of surface forms, is attained than by the traditional copying processes. The system used in the beginning classes in drawing from life conducted by Eugene Steinhof, well-known Viennese educator, is an outstanding example. In his courses, the characteristics of the portion of the human figure under discussion are carefully analyzed and explained from the actual model. After this demonstration the student may refer to the model from time to time to refresh his memory or to study some point which he failed at first to observe or comprehend, but he is not allowed to see the model while he draws. He then uses this knowledge of the figure in original compositions, referring only to his visual concepts of the characteristics of the model. The same general process may be used in the drawing of any object whether it be a cast of an element of architecture in charcoal or an architectural landscape in water color.

In this connection it should be noted that there is a tendency in the more progressive schools to eliminate the traditional drawing-from-landscape course. Some study from the natural landscape may be undertaken, but the objective is only the lesson in abstract composition and the color note involved. The logical method of rendering the setting of a machine-age architectural design is by means of a simple, conventionalized treatment of the entourage. There is little place in the contemporary program in architecture for faithful, time-wasting processes of copying nature forms in the landscape.

*Essential features of the creative method in drawing.* Certain features of the new method of teaching drawing should be noted:

1. There is often a tendency to allow the student to carry the intriguing creative phase of the process so far that his work becomes creative decorative design rather than drawing. Educators maintain that somewhere the architecture student must learn to draw accurately. His art is in reality limited to constructed architecture, and he must be able to represent these forms truthfully by a drawing or model. His practice demands a different approach than that of the decorative designer or painter.



2. Creative processes develop the student's power of observation more than is possible in any other branch of the curriculum.<sup>123</sup>

3. Interpretation of complex natural forms in a simple and direct manner is in exact harmony with the essential spirit of contemporary architectural design.

4. Introduction of the element of creative composition and organization of the work into projects built around central themes effectively relates drawing subjects to the major professional interest of the architecture student, which is design. He learns how to draw just as he will be required to draw in practice—as a means of expressing his creative ideas. The principles involved in such drawing and modeling composition, whatever the medium, are the same as those which govern architectural design.<sup>124</sup>

5. Drawing projects of a creative character lead directly to a sympathetic understanding of all the allied decorative arts.

*Greater emphasis upon color.* In line with the demand for color as an important factor in modern buildings, most of the schools are including more study of the abstract principles of color in the drawing division. Since it constitutes a part of the aesthetic effect of nearly every piece of architecture today, color must be used in any complete study of that architecture. In the more advanced years, after the fundamentals of drawing have been mastered, the projects in creative composition provide excellent opportunity for a thorough study of this important element as it relates to contemporary architecture.

#### F. Academic Subjects

According to the findings of the Association Survey of 1931, all the schools include some requirements in non-technical subjects.<sup>125</sup> In 1935, twenty-five of the schools provided electives in the later years, under faculty guidance. All of these features were noted as beginning to take form during the Eclectic Period, although they may be considered as culminating in the schools of today.

*Placement of the academic subjects in the curriculum.* This problem is, to a large extent, a corollary of the five-year movement. The principal reason for the added year has been the need felt for a broader academic training. Investigation of the problem suggests three possible solutions, as follows:

1. To begin the required curriculum with a period of academic study and defer most of the professional work to the advanced years. This plan has always had advocates. University of California, Columbia, and

<sup>123</sup>Bosworth and Jones, *op. cit.*, p. 19.

<sup>124</sup>*Architectural Education* (Special Illustrated Pamphlet of Massachusetts Institute of Technology, 1934), p. 20.

<sup>125</sup>Bosworth and Jones, *op. cit.*, p. 64.



Princeton Universities which maintain six-year programs, and the Graduate School at Harvard University have endorsed it by the nature of their general organization of curriculum.

2. To place most of the academic requirements late in the curriculum. This was usually the plan in mind when, for the purpose of providing more cultural training, the fifth year was added to the curriculum.

3. To organize the curriculum so that throughout the five years the student might be trained in technical subjects at the same time that he is carrying on his academic work. This plan, as noted previously, allows for much better coordination and integration with the technical portions of the curriculum. After many discussions the Association of Collegiate Schools of Architecture went on record in 1922 with the consensus of the meeting in favor of the last solution. The following is the resolution which was carried:

*Whereas:* To start a student at an early age in technical training tends to the neglect of his broader education, and

*Whereas:* To start him with emphasis on general education followed by later training in design tends to hamper his creative faculties through forced neglect of these faculties in the more flexible period of youth, therefore,

*Be it resolved:* That it is the sense of this meeting that training in the technical work should be given at the same time that the student is carrying on work of a general academic nature.<sup>126</sup>

Sixteen of the forty-five schools in 1935 still placed the academic requirements in the first two years, regardless of the above recommendation.<sup>127</sup>

*The two groups of academic subjects in the architectural curriculum.* The academic subjects generally required in present-day architecture curricula may be divided into two fairly well-defined groups according to general objectives:

1. Those subjects which are, to a large extent, tool subjects for the architecture student, such as English, public speaking, economics, and sociology.

2. The more purely cultural subjects, such as history, literature, philosophy, psychology, and foreign languages.

English is a requirement in all the schools. Thirty-two schools require or recommend one or more of the social sciences, while thirteen provide a general course in history of civilization. Sixteen institutions now require no foreign language.<sup>128</sup> Because of the traditional emphasis upon grammar and composition instead of practical reading for comprehension, many educators maintain that the actual results obtained by demanding

<sup>126</sup> *Minutes of the Ninth Annual Meeting, Association of Collegiate Schools of Architecture, Chicago, Illinois, June 5, 6, 1922, pp. 5, 9.*

<sup>127</sup> *Bulletins of the respective schools, 1935-36.*

<sup>128</sup> *Loc. cit.*



this study of all architecture students do not justify the amount of time it necessarily claims from the heavily loaded professional program. In general there exists a wide variation among the schools both as to the amount and as to the subject matter included in the academic requirements.<sup>129</sup>

*The need for better integration with the professional subjects.* Since the subjects are more directly applicable to the practice of architecture, the first group noted above tends to be better organized for the needs of the students and better coordinated and integrated with their professional programs. The public speaking course at the Massachusetts Institute of Technology, for instance, has been arranged specifically for architects and all the exercises are architectural in nature. Instead of having to use as a topic some piece of general literature, the student promotes an architectural scheme, which he has completed as a design project, before the class. The class then assumes the position of a public board of directors who are interested in what the architect has to offer.

All educators agree that the more purely academic subjects should supplement the professional content of the curriculum with a positive introduction to that scholarship and broad culture which an academic institution affords, and which the practicing architect now so much needs as a background. As to whether the architecture student, under the present system, acquires as much as he should of either scholarship or the more intangible attributes of culture, most educators equally question. Bosworth and Jones found in the Association Survey some tendency toward an attitude of resentment by the technical faculties, who regretted the continual interference with the work of the students in their exacting major studies.<sup>130</sup> The chief difficulty has been and still is the fact that these traditional compartments of subject matter have little relation to the strong professional interests of the architecture student.

Instruction in the academic subjects regularly requires instructors outside the architecture staff, but the more progressive educators maintain that it is possible for the professional and non-professional groups to work in closer cooperation. Doubtless within the general trend in architectural education today will lie the ultimate solution of this problem which has confronted it from the time of the organization of the first school. When the student of architecture can be provided with an academic experience which is thoroughly organized to meet his special needs and which is effectively integrated with his professional experience, particularly his creative design projects, then only may he be expected to lay the foundation for that broad academic scholarship and that comprehension of the vital, social and intellectual forces of our civilization which are needed in architectural practice.

<sup>129</sup>Bosworth and Jones, *op. cit.*, p. 65.

<sup>130</sup>*Loc. cit.*



TABLE V  
GENERAL DATA ON THE SCHOOLS OF ARCHITECTURE IN AMERICA  
AT THE CLOSE OF THE YEAR 1934-1935<sup>1</sup>

| School  | Date of<br>estab-<br>lishment | Enroll-<br>ment <sup>2</sup> | Years in<br>curriculum | Graduate<br>work<br>toward a<br>degree | Arch. Degrees    |                                      | Organization   | Member<br>of<br>Association |
|---|-------------------------------|------------------------------|------------------------|--|------------------|--------------------------------------|--|-----------------------------|
|   |                               |                              |                        |  | First            | Graduate                             |  |                             |
| 1. Massachusetts Institute<br>of Technology ..... | 1865                          | 86                           | 5, 1                   | yes                                    | B.Arch.          | M.Arch.                              | Dept.  | yes                         |
| 2. Cornell University .....                       | 1871                          | 130                          | 5, 1                   | yes                                    | B.Arch.          | M.Arch.                              | College  | yes                         |
| 3. University of Illinois....                     | 1873                          | 239                          | 4, 1                   | yes                                    | B.S. in<br>Arch. | M.S. in<br>Arch.                     | Dept., C. of F.A.                                    | yes                         |
| 4. Syracuse University ....                       | 1873                          | 51                           | 5, 1                   | yes                                    | B.Arch.          | M.Arch.                              | Dept., C. of F.A.                                    | yes                         |
| 5. Columbia University ...                        | 1881                          | 71                           | 2, 4, 1                | yes                                    | B.Arch.          | M.S. in<br>Arch.                     | School   | yes                         |
| 6. University of<br>Pennsylvania .....            | 1890                          | 111                          | 5, 1                   | yes                                    | B.Arch.          | M.Arch.                              | Dept., Sc. of F.A.                                   | yes                         |
| 7. George Washington<br>University .....          | 1893                          | 64                           | 5, 1                   | yes                                    | B.Arch.          | M.F.A.                               | Dept., Div. of F.A.                                  | no                          |
| 8. Armour Institute of<br>Technology .....        | 1895                          | 89                           | 4, 1                   | yes                                    | B.S. in<br>Arch. | M.S. in<br>Arch.                     | Dept.  | yes                         |
| 9. Harvard University ....                        | 1895                          | 35                           | 5 to 7½ <sup>a</sup>   | yes                                    | B.Arch.          | M.Arch.                              | School   | yes                         |
| 10. University of Notre<br>Dame .....             | 1898                          | 45                           | 5                      | no                                     | B.Arch.          |                                      | Dept., C. of Eng.                                    | yes                         |
| 11. Ohio State University...                      | 1899                          | 74                           | 5, 1                   | yes                                    | B.Arch.          | Architect                            | Dept., C. of Eng.<br>School<br>Controlled by<br>Eng. | yes                         |
| 12. Washington University..                       | 1904                          | 64                           | 4, 1                   | yes                                    | B.Arch.          | M.Arch.<br>M.A.<br>Grad. in<br>Arch. |  | yes                         |
| 13. University of California.                     | 1904                          | 51                           | 4, 1, 1                | yes                                    | A.B.             |                                      | School   | yes                         |



TABLE V (Continued)

| <i>School</i>                                 | <i>Date of<br/>estab-<br/>lishment</i> | <i>Enroll-<br/>ment</i> | <i>Years in<br/>curriculum</i> | <i>Graduate<br/>work<br/>toward a<br/>degree</i> | <i>Arch. Degrees</i>                   |                  | <i>Organization</i>                  | <i>Member<br/>of<br/>Association</i> |
|---|--|-------------------------|--------------------------------|--|--|------------------|--------------------------------------|--------------------------------------|
|   |  |                         |                                |  | <i>First</i>                           | <i>Graduate</i>  |                                      |                                      |
| 14. Carnegie Institute of<br>Technology ..... | 1905                                   | 115                     | 5, 1                           | yes  | B.Arch.<br>B.Arch.<br>B.S. in<br>Arch. | M.S. in<br>Arch. | Dept., C. of F.A.<br><br>College     | yes<br><br>yes                       |
| 15. University of Michigan..                  | 1906                                   | 133                     | 4 or 5, 1                      | yes  |  |                  | Dept., Sc. of<br>Arch. and All. Arts | yes                                  |
| 16. Alabama Polytechnic<br>Institute .....    | 1907                                   | 64                      | 5, 1                           | yes  | B.Arch.                                | M.Arch.          | School, C. of Eng.                   | yes                                  |
| 17. Tulane University .....                   | 1908                                   | 36                      | 4                              | no   | B.Arch.                                |                  | Dept.                                | yes                                  |
| 18. Georgia School of<br>Technology .....     | 1908                                   | 66                      | 5                              | no   | B.Arch.                                |                  | Dept., C. of Eng.                    | yes                                  |
| 19. University of Texas.....                  | 1909                                   | 135                     | 5, 1                           | yes  | B.Arch.                                | M.Arch.          | Dept., Sc. of<br>Eng. and Arch.      | yes                                  |
| 20. Catholic University<br>of America .....   | 1911                                   | 28                      | 4, 1                           | yes  | B.Arch.                                | M.Arch.          | Dept., C. of Eng.                    | no                                   |
| 21. A. and M. College of<br>Texas .....       | 1912                                   | 85                      | 5                              | no   | B.Arch.                                |                  | Dept.                                | no                                   |
| 22. Rice Institute .....                      | 1912                                   | 43                      | 5                              | no   | B.Arch.                                |                  | School, C. of Eng.<br>and Arch.      | yes                                  |
| 23. University of Minnesota.                  | 1913                                   | 125                     | 5, 1                           | yes  | B.Arch.                                | M.Arch.          | Dept., Sc. of F.A.                   | yes                                  |
| 24. Yale University .....                     | 1913                                   | 96                      | 5, 1                           | yes  | B.F.A.                                 | M.F.A.           | Dept., Sc. of Arch.<br>and All. Arts | yes                                  |
| 25. University of Oregon....                  | 1914                                   | 62                      | 5, 1                           | yes  | B.Arch.                                | M.Arch.          | School, Univ. C.<br>(Liberal Arts)   | yes                                  |
| 26. University of<br>Washington .....         | 1914                                   | 84                      | 5                              | no   | B.Arch.                                |                  | Dept., Sc. of<br>Mech. Arts          | no                                   |
| 27. N. D. Agricultural<br>College .....       | 1914                                   | 35                      | 4                              | no   | B.S. in<br>Arch.                       |                  | School, Div. of<br>Eng.              | no                                   |
| 28. Oklahoma A. and M.<br>College .....       | 1916                                   | 59                      | 5                              | no   | B.Arch.                                |                  | Dept., Sc. of Eng.                   | no                                   |
| 29. Clemson College .....                     | 1917                                   | 44                      | 4                              | no   | B.Arch.                                |                  |                                      | no                                   |



|   |       |      |     |                    |                 |  |     |
|---|-------|------|-----|--------------------|-----------------|--|-----|
| 30. University of Kansas...1919                 | 60    | 4, 1 | yes | B.S. in Arch.      | M.S. in Arch.   | Dept., Sc. of Eng. and Arch.           | yes |
| 31. University of Virginia...1918               | 34    | 4    | no  | B.S. in Arch.      |                 | Dept., Sc. of F.A. in C. of Arts & Sc. | no  |
| 32. Kansas State Agricultural College .....1918 | 101   | 4, 1 | yes | B.S. in Arch.      | M.S. in Arch.   | Dept., Div. of Eng.                    | yes |
| 33. University of Southern California .....1919 | 100   | 5, 1 | yes | B.Arch.            | M.Arch.         | College                                | yes |
| 34. University of New Hampshire .....1919       | 22    | 4    | no  | B.S. in Arch.      |                 | Dept., C. of Tech.                     | no  |
| 35. Howard University ....1919                  | 15    | 4    | no  | B.S. in Arch.      |                 | Dept., Sc. of Eng. and Arch.           | no  |
| 36. Princeton University ...1920                | 16    | 4, 2 | yes | A.B.Major          | M.F.A. in Arch. | School and Grad. School                | yes |
| 37. Western Reserve .....1921                   | 39    | 5, 1 | yes | B.Arch.            | M.Arch.         | School                                 | no  |
| 38. Pennsylvania State College .....1921        | 46    | 4, 1 | yes | B.S. in Arch.      | M.S. in Arch.   | Dept., Sc. of Eng.                     | yes |
| 39. University of Cincinnati.1922               | 75    | 5    | no  | B.S. in Arch.      |                 | Course, Sc. of Applied Arts            | yes |
| 40. Idaho University .....1924                  | 14    | 4    | no  | B.S. in Arch.      |                 | Dept., C. of L.A.S.                    | no  |
| 41. University of Florida...1925                | 46    | 4, 1 | yes | B.S. in Arch.      | M.S. in Arch.   | Dept., Sc. of Arch. and All. Arts      | no  |
| 42. New York University...1926                  | 327   | 5, 1 | yes | B.Arch.            | M.Arch.         | Dept., Sc. of F.A.                     | yes |
| 43. Rensselaer Polytechnic Institute .....1929  | 51    | 4, 1 | yes | B.Arch.            | M.Arch.         | Dept.                                  | yes |
| 44. University of Nebraska..1930                | 52    | 5, 1 | yes | B. of Art of Arch. | M.Arch.         | Dept., C. of Eng.                      | no  |
| 45. University of Oklahoma.1930                 | 58    | 5, 1 | yes | B.S. in Arch.      | M.S. in Arch.   | School, C. of Eng.                     | no  |
| <hr/>   |       |      |     |                    |                 |  |     |
| Total enrollment .....                          | 3,376 |      |     |                    |                 |  |     |
| Average enrollment .....                        | 75    |      |     |                    |                 |  |     |

<sup>1</sup>Bulletins and records of the individual schools of architecture for the year 1935-1936.

<sup>2</sup>Undergraduate enrollment in complete professional architecture programs.

<sup>3</sup>Primarily a graduate school.



## THE SCHOOLS OF THE MODERN PERIOD

The summary of the growth of the schools is taken, for the most part, at the close of the year 1934-1935 at which time the period, as far as it can at present be evaluated, may be considered mature in its important characteristics. Significant administrative adjustments during the Modern Period in those schools which have been studied previously and brief descriptions of the five newly organized schools are outlined in this chapter section.

A. Significant Administrative Changes in Previously Established Schools<sup>131</sup>

Dean William Emerson of the School of Architecture at the Massachusetts Institute of Technology resigned in 1938, and was succeeded by Walter R. McCornack of Cleveland, Ohio.

At Cornell University, George B. Young, who had been in charge of the construction courses for the previous twenty years, succeeded F. H. Bosworth as dean of the college in 1928. Bosworth then devoted all of his time to the design classes. Gilmore D. Clarke became dean in 1938.

L. C. Dillenback resigned at the University of Illinois in 1930 and A. F. Deam, a Chicago architect, succeeded him as head of the design staff. The present College of Fine and Applied Arts at the University of Illinois was established the following year comprising the former departments of Architecture, Art and Design, Landscape Architecture and the School of Music. Rexford Newcomb was appointed dean of the new college and L. H. Provine continued as head of the Department of Architecture.

After the death of A. D. F. Hamlin, Joseph Hudnut was appointed in 1927 to the chair of history of architecture at Columbia University. He succeeded Dean Boring as head of the School of Architecture in 1934. After one year, however, he resigned to accept the position of head of the newly organized Graduate School at Harvard University. Leopold Arnaud, New York architect and member of the design staff, became the dean at Columbia. Arnaud has revised and completed the reorganization of this school with its unequaled location and equipment.

In 1934, L. C. Dillenback was invited to Syracuse University as head of the design staff. Frederick W. Revels died in 1937, and Dillenback succeeded him as Director of the Department of Architecture.

During recent years, Paul Cret has withdrawn from the active role of chief of the design staff at the University of Pennsylvania, but he has retained his connection with the school in an advisory capacity. In 1932, Warren Powers Laird resigned after more than forty years of service as head of the school. He was succeeded by George Simpson Koyle.

<sup>131</sup> *Bulletins* of the respective schools, 1925-1940.



George H. Edgell, Dean of the Harvard University School of Architecture, resigned in 1935 to devote his time to the work as curator of the Boston Museum of Fine Arts. He was succeeded, as noted above, by Joseph Hudnut who reorganized the school along lines similar to those of his Columbia University experiment. The Harvard University Schools of Architecture, Landscape Architecture and City Planning were united in 1935 to form departments of the Graduate School of Design, Hudnut being Dean of the Faculty.

A very significant move was made in 1937 with the appointment of Walter Gropius, the leader of the German Modern movement, to the Harvard University faculty as Professor of Architecture. In 1938, Gropius became Chairman of the Department of Architecture.

The second leader in contemporary architectural education in Germany to come to this country was Ludwig Mies van der Rohe who succeeded Earl H. Reed, Jr., as Director of the Department of Architecture at Armour Institute of Technology in 1938.

Gabriel Ferrand died in 1934 and A. E. Fitch, then Associate Professor of Construction, succeeded him as acting head of the school at Washington University. Dean Langsdorf of the School of Engineering continued, however, to retain his position as Dean of the School of Architecture.

After the resignation of John Galen Howard at the University of California in 1927, Charles Perry became Dean of the School of Architecture. Perry had been associated with the school since 1911.

The school at the University of Michigan was separated administratively from the engineering division in 1931, becoming an independent College of Architecture. Dean Emil Lorch was succeeded by Wells Bennett in 1936.

Goldwin Goldsmith resigned his position as administrative head of the department at the University of Texas in 1935 to devote all of his time to instruction in the school. He was succeeded by Walter T. Rolfe who had been a member of the staff since 1929.

At the University of Minnesota, Frederick M. Mann resigned in 1936, having been the head of the School of Architecture since its founding in 1913. He was succeeded by Roy Childs Jones, a member of the staff who had come to the institution with him, as noted previously.

Otto Faelten, chief critic in architectural design at Yale University, was succeeded in 1933 by Raymond Hood who died the following year. Frederick Charles Hiron, a third well-known New York architect and design critic, took his place.

At the University of Washington Carl F. Gould, who had been head of the department of architecture since the date of its establishment, was succeeded in 1926 by Harlen Thomas. During the administration of Thomas the department of architecture was separated from the fine arts division, as has already been noted in Chapter III.



## B. New Schools Established During the Modern Period

*University of Florida.* A four-year course in architecture was established at the University of Florida in 1925 as a department of the engineering division. The Florida chapter of the American Institute of Architects assisted by providing special lecturers and the State Board of Architecture donated a library. The degree conferred was Bachelor of Science in Architecture.

This school was founded under the direction of Rudolph Weaver who is the present head. Weaver had previously been head of the school at the University of Idaho, as has already been noted in Chapter III.

In 1928 professional courses were added in interior decoration and mural painting. The following year architecture was separated from engineering, becoming the major department of the School of Architecture and Allied Arts.

*New York University.* Architecture was established at New York University in 1926 as a course in the Department of Fine Arts. It was organized under the direction of Edward Raymond Bossange, who had previously been head of the school at Princeton University. The course was arranged in conjunction with the Beaux-Arts Institute of Design, leading to a diploma; and an entrance requirement of five years of office practice was established. The requirements for the diploma included the certificate in architectural design from the Beaux-Arts Institute of Design and the completion of a curriculum of regular architecture subjects other than design.

A program leading to the Bachelor of Architecture degree was added in 1928 and four years later the graduate degree of Master of Architecture was offered. The diploma course was retained, however, and one of the strong features of the school has always been its emphasis upon the program of the Beaux-Arts Institute of Design.

In 1928 the College of Fine Arts was established comprising ten departments including architecture, and Bossange was appointed, in 1930, Dean of the College and Director of the Department of Architecture. The school was then moved from the Washington Square Campus to a site near the Beaux-Arts Institute of Design, and again in 1932 it was moved to the present location at Bryant Park. In 1935 the College of Fine Arts was made an independent School of Architecture and Allied Arts.

Special efforts were made at New York University to care for the educational needs in this great center. The program was made very flexible for the convenience of students engaged in the many near-by offices.

*Rensselaer Polytechnic Institute.* The Department of Architecture was established at Rensselaer Polytechnic Institute in 1929 as one of the regular courses of the Institute. Hugh McDonald Martin was the first instructor. Ralph Grady Gulley, the present head of the school, was



appointed Professor of Architecture and head of the department in 1931. The degree conferred was that of Bachelor of Architecture. No graduate year was offered.

*University of Nebraska.* A five-year curriculum in architecture was established at the University of Nebraska in 1930 as a department in the College of Engineering. A course in architectural engineering which had previously been given was retained. The architecture degrees were Bachelor of the Art of Architecture and Master of Architecture. Harry Francis Cunningham, the present chairman, organized the new school.

At the University of Nebraska, the first two years consist of cultural studies except for some preliminary training in drawing and the elements of architecture. The three years of the upper division are almost entirely devoted to professional architectural studies.

*University of Oklahoma.* A course in architectural engineering had previously existed at the University of Oklahoma, and in 1930 a complete professional curriculum in architecture was established as a school under the College of Engineering. It was organized under the direction of Joseph Edgar Smay, the dean of the College of Engineering. The degrees conferred were Bachelor of Science in Architecture and Master of Science in Architecture.

#### SUMMARY DATA ON THE STATUS OF SCHOOLS OF ARCHITECTURE

*Number of schools of architecture.* There were, in 1935, forty-five schools of architecture in the United States maintaining complete professional courses (Table V, page 235). Five of these were established during the Modern Period.

*Enrollment.* The total enrollment in architecture in 1935 was 3,376<sup>132</sup> (Table V.) The average enrollment per school was seventy-five. In 1930 the total enrollment had been 4,575 with an average of 102 students per school.<sup>133</sup> The decrease in enrollment during the following five depression years was 26 per cent, while the decrease in some of the individual institutions was more than 50 per cent. The only ones to indicate any increase during the depression periods were: University of Texas, Agricultural and Mechanical College of Texas, University of Oregon, Kansas State Agricultural College, and New York University. It should be noted that all but the last institution are western state universities with relatively low tuition rates. A decrease of less than 10 per cent was reported from seven additional schools.

<sup>132</sup>Statistics relating to member schools of the Association of Collegiate Schools of Architecture, December, 1936. Students registered during 1935-36 as candidates for the first promotional degree. Also, direct correspondence with non-association member schools.

<sup>133</sup>F. H. Bosworth and Roy Childs Jones, *Study of Architectural Schools* (New York: Charles Scribner's Sons, 1932), p. 188.



## 242 COLLEGIATE EDUCATION IN ARCHITECTURE

Since 1935 the enrollment in architecture has gradually increased. According to the records of the Association, there was a total of 3,020 students enrolled in the member schools in 1939 with an approximate grand total of 4,000 in all of the schools of the country.

*Number of annual graduates.* The average total number of graduates in architecture annually is now approximately 530. It is significant that this number has recently tended to decrease. The records of the Association, for member schools only, indicate that, although there was an increase in the total number of new students annually of from 727 to 1,130 during the last five years, there was a decrease in number of graduates of from 591 to 378. As far as can be ascertained, this is a result both of the earlier drop in enrollment and the general stiffening of course requirements throughout the schools of architecture.

*Status of the schools of architecture in the college organization.*<sup>134</sup> Ten schools of architecture were ranked as independent schools or colleges within their respective universities. Seventeen, however, were actually independent, for an additional seven were controlling departments within the minor divisions. Twenty schools were still divisions of departments of engineering, among them some of those more recently established. Twelve were divisions of fine arts. A total of seventeen of the schools were closely connected with other fine arts departments within their respective university organizations. Four schools of architecture were departments of liberal arts divisions.

*Baccalaureate degrees.*<sup>135</sup> The degree of Bachelor of Architecture was conferred in twenty-eight of the forty-five schools, a fact which indicates the increasing tendency toward this standard professional degree. Fourteen schools, for the greater part those more recently established, retained the degree of Bachelor of Science in Architecture. With the exception of two of these institutions, the Bachelor of Science degree was given for four-year curricula; while but five of the twenty-eight awarding the Bachelor of Architecture degree offered four-year programs. This indicates a general tendency to terminate the four-year course with the degree, Bachelor of Science in Architecture and the five-year course with the degree, Bachelor of Architecture. The University of Michigan provided either one depending upon the choice of a four- or a five-year program. Two schools awarded the Bachelor of Arts degree, one Bachelor of Fine Arts, and one Bachelor of the Art of Architecture.

*The graduate year and graduate degrees.*<sup>136</sup> Twenty-eight of the forty-five schools offered a regular year of graduate study leading to a degree (Table V). In addition, three schools which were in this

<sup>134</sup> *Bulletins* of the respective schools, 1935-36.

<sup>135</sup> *Loc. cit.*

<sup>136</sup> *Loc. cit.*



regard essentially graduate schools—Harvard, California, and Princeton—provided two or more years of advanced work.

Seventeen of the thirty-one schools offering graduate study conferred the Master of Architecture degree, while eight retained the Master of Science in Architecture, indicating the same tendency in the matter of differentiation between the two types of degrees as in the undergraduate programs. Two schools awarded the Master of Arts degree, three Master of Fine Arts, and one the degree, Architect. The University of California also offered as a second graduate degree, that of Graduate in Architecture at the termination of the second year of graduate study.

*Membership in the Association of Collegiate Schools of Architecture.* Thirty-one of the schools in the United States were members of the Association in 1935, and the membership had grown to thirty-three in 1939. This group included approximately two-thirds of the total number of regular professional schools of architecture.

#### SUMMARY OF THE MODERN PERIOD

The Modern Period has been characterized by the gradual shift from the assurance of Beaux-Arts Eclecticism, both regarding objectives and its standardized processes, to a condition of general uncertainty and experimentation out of which has now emerged a new and fairly well-defined system of training.

In contrast to the previous periods in American architectural education, this movement has been common to all sections of the country. The effects of a past standardization and the growing influence of the Association of Collegiate Schools of Architecture were the chief educational factors in the national unity.

*The schools and the depression period.* During the first five years of the Modern Period the normal increase of about one school per year continued, but during the years of the depression, no new schools were organized. Moreover, the total enrollment decreased more than one-fourth. Professional practice in architecture was greatly reduced, many of the offices being compelled to close. From the standpoint of the seriousness of the situation with which the profession was confronted, the decrease in numbers of students preparing for practice must be held to have been a healthy condition. Its important effect upon the schools was to encourage them in the general program of experimentation.

*Summary of the early influences and the period of experimentation.* Since readjustment processes were generally initiated within the field of education as early as they became evident in architectural practice in this country, the movement in the schools was traced without complete preliminary reference to its counterpart in the background of the profession.

In a normal manner the trend of the modern movement may be

observed first in connection with the major professional subject of architectural design. A readiness for the shift to modern design had been prepared by the influence of the changing architecture of the American tall steel building and by those adjustments to new building functions and new materials which the profession had been compelled to make in the design of commercial structures. It was, however, the influence of the, then mature, first or transitional phase of European Modern, about 1925, which provided the impetus for the educational movement in the United States. During the first years of the period, education was affected primarily by this early phase of European Modern. Later, the inspiration emanated increasingly from the more recent trends in Western Europe which involved a complete break with traditional concepts in architecture. From the early artificial style shift in architectural design, the American modern movement gradually spread until it embraced a thorough revision of the essentials of the entire educational program.

Since the demands of contemporary civilization along with its technology have completely changed and the future of the profession as well as the nature of the requirements for successful practice have become increasingly uncertain, architectural education has, of necessity, assumed a new position of responsibility to the profession and to the contemporary social order. Nearly all of the schools in the country have become engaged in one or another phase of a general experiment in the attempt to discover a more adequate training for this important branch of service to society.

The elements of this general readjustment in architectural education may be broadly summarized as follows:

1. A more unified, thoroughly integrated and effective curriculum is being developed with stiffer course requirements.
2. There is greater emphasis upon the study of materials and the processes of construction and equipment of buildings.
3. A foundation in the study of economics, as it relates to architecture, is being added to the curriculum.
4. A beginning has been made in the readjustment of the academic subjects to provide a more adequate foundation for some understanding of present-day civilization and for a broader cultural background.
5. In an increasing number of schools, architecture is being effectively related to the allied professional fields.
6. The plagiaristic methods of study of Eclecticism are being abandoned, and the more artificial devices of the Beaux-Arts system are being supplanted or, at least, suppressed.
7. There is a definite tendency toward realism stressing the study of conditions which are inherent in present-day needs of human beings; and normal creative expression inspired by these sources is encouraged.



8. Throughout the curriculum, architecture is being related to the larger problems of the community.

9. The national organizations concerned with architectural education are perfecting a plan of uniting their interests in order to insure some nation-wide coordination and control of the different elements which make up the complete preparation for practice.

*The new education in architecture.* While variation and experimentation among the different schools will, without doubt, continue to be a characteristic of the current period, a well-defined system of modern architectural education has gradually evolved. A small number of conservative schools still cling to principles that developed under Eclecticism in this country while a few others may be termed radical in renouncement of all traditions in the field. The greater number of "mid-ground" schools, however, are now developing a distinctly American type of education in an attempt to meet the needs and ideals of contemporary and probable future American practice.

Habits of exact and thorough thinking are emphasized from the first of the curriculum. Comprehensive projects are evolved out of everyday, physical and technical reality, rigorously training the student in solving the complexities and the niceties of modern requirements within the pattern of his unfolding aesthetic concepts and his growing awareness of the culture of his time. Starting in this manner, with a clear understanding of the essentials of life, the student is led on to power and imagination in modern architecture.

## CHAPTER V

### CONCLUSION

There remains an element of uncertainty both regarding the ultimate form of good modern architecture and the future of the profession. Progressive educators, however, are now in agreement as to the broad essentials of a training which should more adequately prepare the student to cope with the realities of contemporary practice. Therefore, the conclusion of a study of the history of American education in architecture is limited to a review of the movement from its beginning, and a summary of the significant characteristics in the current trend in this field.

*Review of the three periods in the history of architectural education in the United States.* During the nineteenth century with the development of the new industrial order and the modern science of construction, architecture gradually lost its vital contact with building processes and agencies. Furthermore, it was too early for any consciousness of the social implications of the industrial age which might constitute a positive influence toward an honest aesthetic expression. The architect, in his increasingly professional role, began to turn for inspiration to the ready illustrations of historic examples with which modern technical facilities were providing him. The romantic revivals, with their attendant artificiality and license, and the unfavorable conditions of a young and rapidly expanding commercial nation further alienated and weakened the art. By the post-Civil War years, American architecture had been reduced to a very low state. This was the period when formal architectural education was begun in this country.

The architect then normally received his preparation only through such practical experience as he was able to acquire, and there were scarcely any standards of practice. Inspired by the first contacts with the great French school, the École des Beaux-Arts, and realizing the need for organized training, especially in the field of practical planning and construction, a few pioneer educators founded the first American schools of architecture.

Except for some direct influence from the École in one case, the early schools were products of local conditions of the time. They taught what was most needed in the profession—the science of modern construction, practical building details, and the historic styles of revivalism. The only institutions of higher learning in the United States were the universities and the only university divisions which offered assistance in teaching the science of building were the departments of engineering. In this manner the strong academic requirement in the architecture curriculum came into existence with the many attendant problems of adjustment to an academic routine. There originated also that con-



nection with engineering divisions which was, in the case of most schools, a handicap in the development of education in architecture as a fine art. The struggling early schools of architecture were highly diversified local experiments, each one receiving the stamp of the personality of its own pioneer leader. This was the great era of unbridled individualism in American industry and the schools as well as the profession of architecture reflected this condition.

The beginning of the second period of American architectural education, in the last years of the nineteenth century, is marked by the greatly increased influence of the *École des Beaux-Arts* and the advent of Neo-Classicism. The leaders in the movement were American architects who had attended the *École des Beaux-Arts* with its classic background and inclination and who were convinced that the only recourse in improving the conditions of the time was through the discipline of carefully studied classic forms. Therefore, they ignored the crude beginnings in the Middle West of a return to an indigenous modern American architecture. European architecture as well as the *École* was then broadly eclectic, so it was inevitable that, with the stress upon formal education and the attendant comprehensive courses in history of architecture throughout the schools in this country, Neo-Classicism should early develop into general Eclecticism. The classic element, however, continued to predominate in American architecture.

The period of Eclecticism in architecture is parallel to that of the supremacy of industrial and commercial monopoly and great concentration of wealth in the United States. The background of this powerful social force was reflected, not only in the characteristic trend toward the monumental and the pretentious in architecture, but also in the attitude and standards of practice of the profession.

Dominated by the philosophy of Eclecticism, the architect planned his structures from the standpoint of function as demanded by practical requirements, as far as this was possible within the pattern of the historic style chosen. For the details and the character of his architecture he then turned in a carefully studied manner to the best examples of past periods. Thus, American architecture, already undermined by successive historic revivals, tended to become further divorced from contemporary realities. American Beaux-Arts Eclecticism produced an artificial type of architecture which ignored the mass of common utilitarian buildings erected in this country. In its monuments, sponsored by public and private wealth, however, it disciplined the license of the nineteenth century and brought about a studied refinement that has scarcely been equalled in the modern world.

Since the ideal of neo-classic and eclectic refinement produced a demand for more architects who were trained in design, there resulted a rapid increase in both the enrollment in architecture and the number of new schools. The American Academy in Rome and the educational program of the Society of Beaux-Arts Architects were important factors



in the movement. Influenced by large numbers of American École men, as well as by the demand for Beaux-Arts trained designers, the schools adopted the French methods as far as this was possible in the university organizations. The period of Eclecticism was characterized by the strong influence of Beaux-Arts educational processes in design. With the greatly increased stress upon the subject of design, this branch of the architecture curriculum became the most important one. The five traditional divisions of the curriculum were then design, construction, history of architecture, drawing, and academic subjects, with design the major subject.

In most schools the modified French atelier system was maintained. Instructional methods in design were individual and highly competitive. The student was taught to plan after the formal manner of the Beaux-Arts and he was disciplined throughout the four years in the best traditions of the past, especially the classic branches. His projects tended to be artificial, and practical details and economic considerations were largely ignored.

The schools of Eclecticism produced skillful designers, each possessing a refined sense of design within the limits of the historic styles, a thoroughly fixed habit of plagiarism, some knowledge of the theory of structural engineering, and a respect for the ethical standards of the profession of architecture. Contact with reality was avowedly deferred to the exigencies of professional practice.

Under the influence of Beaux-Arts Eclecticism and in line with the tendencies of the time, American education, which had been characterized during the Early Period by varied individual school experiments, gradually changed to a condition of standardization. The process may be considered as complete by 1912. Previous to that date there may be distinguished three groups of schools in the Eclectic Period as follows: (1) the larger group made up for the most part of the older Eastern institutions in which the Beaux-Arts tendencies had been most pronounced; (2) the Middle Western schools which had remained more closely related to the engineering divisions, and which had continued to be influenced by local conditions and the early University of Illinois method with its stress upon practical construction; and (3) the group in the South which had also continued to be related to engineering departments and to conditions peculiar to that locality, but which had tended to be influenced more by the early Massachusetts Institute of Technology and Columbia University systems with their broader professional emphasis.

After the culmination in 1912 and the establishment of the Association of Collegiate Schools of Architecture with its standard minima, there came to be no significant distinctions in the programs of the schools throughout all sections of the country. The demands of the American profession as a whole in the period of Eclecticism were being met, and standardization was the ruling principle.



The modern movement in American architecture first came into evidence after 1920 in the improved design of the tall steel buildings in this country. It was not, however, until the French Exposition of 1925 and the influence of the first or transitional phase of European Modern architecture that any general change is to be noted. By 1930 the second so-called international phase of European Modern design, with its complete break with the past and its emphasis upon present-day functionalism, began also to be accepted in this country. These initial influences of Modernism affected the design projects in architectural education as early as they did the work of the practicing profession. In both the profession and education this was at first only another style shift, but it marked the close of the domination of Eclecticism.

With the confusion in architectural education resulting from the breakdown of Eclecticism, there took place a general revaluation of both objectives and procedures. Nearly all of the educational features of the Eclectic Period came to be questioned. The attitude of the Association of Collegiate Schools of Architecture changed from one of imposing standards to one of encouraging experimentation. Once more, American architectural education became characterized by wide variation among the individual institutions as most of them attempted to revise their program in accordance with the contemporary movement.

The social and technological demands of the scientific and industrial order which have been increasing for more than one hundred years have finally become recognized in architecture. The breakdown of monopolistic capitalism, and the grave problems with which the practicing profession has been confronted during the last decade have hastened a consciousness of these realities. Although, in the United States, the best traditions of the past still provide a healthy, refining influence, contemporary architecture as a movement is no longer plagiaristic. It is consciously inspired by the forces and instrumentalities of modern civilization.

The diversified experimentation has now resulted in a complete readjustment in American architectural education. The objective of the new curriculum is to provide a more effective and homogeneous experience in preparation for the rigorous requirements of the profession today and for the challenge of an indigenous, creative art of architecture. In its more professional branches, the new education is intensely realistic. The projects, which form the core of the curriculum, are based upon actual situations involving a thorough study of the intricate functional needs of modern life, the scientific processes of construction as an architect must comprehend them, materials now available, and the economic factors which would be considered in actuality. In all of the progressive schools, architecture is related to the closely allied fine and industrial arts and to the vital social and cultural problems of the entire community.

*Summary of the growth and general development of the American schools.* During the Early Period in architectural education, comparatively few schools were established, there being only nine in the first thirty years. With the advent of Neo-Classicism and Beaux-Arts Eclecticism the number rapidly increased. From 1890 to 1930 the average rate of establishment was one school per year. The period of most rapid increase was during the years just preceding and following the World War, beginning after the culmination of Eclecticism, about 1912, and the establishment of the Association of Collegiate Schools of Architecture with the prestige that the organization afforded in the field of education. The ten years from 1912 to 1922 mark the starting of nineteen new schools, or nearly double the average rate of increase. It should be noted also that this includes the war period during which there was little activity in professional education. No new schools were founded during the depression period following 1930. There were forty-five schools in the United States maintaining regular professional courses in 1935.

The total enrollment in architecture increased from 508 in 1898 to 1,450 in 1912 and to 4,575 in 1930. The average enrollments per school for the same dates (43, 72, and 102, respectively) indicate the steady increase in the size of schools of architecture. During the five years of the depression from 1930 to 1935 the total enrollment decreased to 3,376, or 26 per cent. The average enrollment per school in 1935 was 75, which was nearly as small as that of 1912. In 1939 the grand total had again increased to approximately 4,000.

All of the schools of architecture during the Early Period were departments of larger administrative units in their respective university organizations. At the culmination of the period of Eclecticism in 1912, five of the twenty schools were permanently independent schools or colleges. This number had grown to ten in 1935. Seven additional schools of the total number of forty-five in the Modern Period were actually, although not nominally, in complete control of their academic programs.

Seven of the nine early schools were connected with engineering divisions, the other two being departments of fine arts divisions. In 1912, thirteen of the fifteen non-independent departments were still controlled by engineering and two by fine arts divisions. This ratio had changed to twenty and twelve, respectively, in 1935. Five of the independent schools were then also closely connected with fine arts divisions, a total of seventeen having this direct association with the allied arts.

Until 1911 the duration of the curricula in all of those schools beginning the professional program with the freshman year was four years. By 1926 there were ten, and in 1931 twenty-one of the forty-five institutions, which maintained five-year programs from the freshman year. This number had increased to twenty-four in 1935. There were, in



addition to this, the four schools requiring a pre-architecture course of at least two years duration.

Five of the nine early schools maintained a graduate year. This ratio was thirteen out of twenty schools in 1912. Of the forty-five modern institutions, twenty-eight maintained graduate courses in 1935.

At the close of the Early Period, eight schools awarded the degree of Bachelor of Science in Architecture and one that of Bachelor of Architecture. In 1912, or the culmination of the Eclectic Period, the Bachelor of Architecture degree was more frequently conferred, the ratio being twelve to seven. Harvard University then offered only the graduate degree. In 1935 one school awarded the degree of Bachelor of Fine Arts, two awarded the Bachelor of Arts degree; while another gave both the Bachelor of Science and the Bachelor of Architecture degrees. Of the remaining forty-one schools, only fourteen continued to award the Bachelor of Science in Architecture, while in twenty-seven the degree was Bachelor of Architecture.

The trends throughout the history of American architectural education in the status of the schools and their general programs may be broadly summarized as follows: From a condition of a few very small and unimportant departments of larger university units, the schools have gradually progressed in administrative rank and prominence in their respective institutions until over one-third of the forty-five present-day institutions are classed as independent colleges or are controlling departments within their independent minor divisions. In like manner the schools have gradually achieved more freedom from a condition, at first, of almost complete domination by engineering divisions until only 40 per cent of the total number now retain such connection. Especially during the Modern Period with the new emphasis upon collaboration of the arts, there has been a corresponding shift to a more congenial association with fine arts divisions. Over one-third of the schools in 1935 were so connected. Also there has been a definite tendency during the Modern Period to increase the duration of the typical professional curriculum to five years. Sixty-two per cent of the schools in the country now provide courses of at least five years duration. On the other hand, the short special courses have been largely eliminated. The increasing scope of the subject matter demanded in the architecture program was the chief factor in this tendency to lengthen the professional curriculum. The proportion of schools which have maintained a graduate year has remained approximately the same throughout all the periods, although all the older established schools have tended to add this feature. Between one-half and two-thirds of the total number in the country during each period provided for the additional postgraduate training. Corresponding to the gradual shift away from the control by engineering, the regular professional degree has changed from the previously almost universally accepted Bachelor of Science in Architecture to Bachelor of Architecture in about two-thirds of the schools. The

latter degree is now generally given in schools providing five-year programs, while the former degree is usually retained in those continuing to limit the architecture course to the original length of four years.

In all of the later developments the influence of the Association of Collegiate Schools of Architecture has been marked. This national organization has provided a unity and a prestige in the field of architectural education which did not exist previous to the World War period.

*The responsibility of a unified profession.* Confronted with the decline in prestige of the architect and the drastically changed conditions to be met, all organized branches of the profession which hold an interest in education are collaborating for the purpose of guaranteeing to the coming generation of practitioners a more adequate preparation. The objective also embraces an improvement in the distribution and coordination of the educational facilities of the country and an assurance of more rigorous processes of selection from the first school year to certification. Progressive leaders are agreed that this is a matter of vital importance if in the future the architect, within his general sphere of activity, is to become indispensable to modern society, and if architecture is again to assume its role of active leadership in the field of the creative arts.



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## APPENDIX

### VITA

The author of this dissertation was born in Minneapolis, Minnesota, October 9, 1888. He received his education at the following institutions: Attended Willamette University for three years; A.B., University of Southern California, 1912; A.M., University of Southern California, 1914; B.Arch., University of Pennsylvania, 1925; and attended Columbia University, 1929-30. There have been no previous formal publications. The author is a licensed architect in the state of California, a member of the American Institute of Architects, and Dean of the Harris College of Architecture and Fine Arts at the University of Southern California.







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